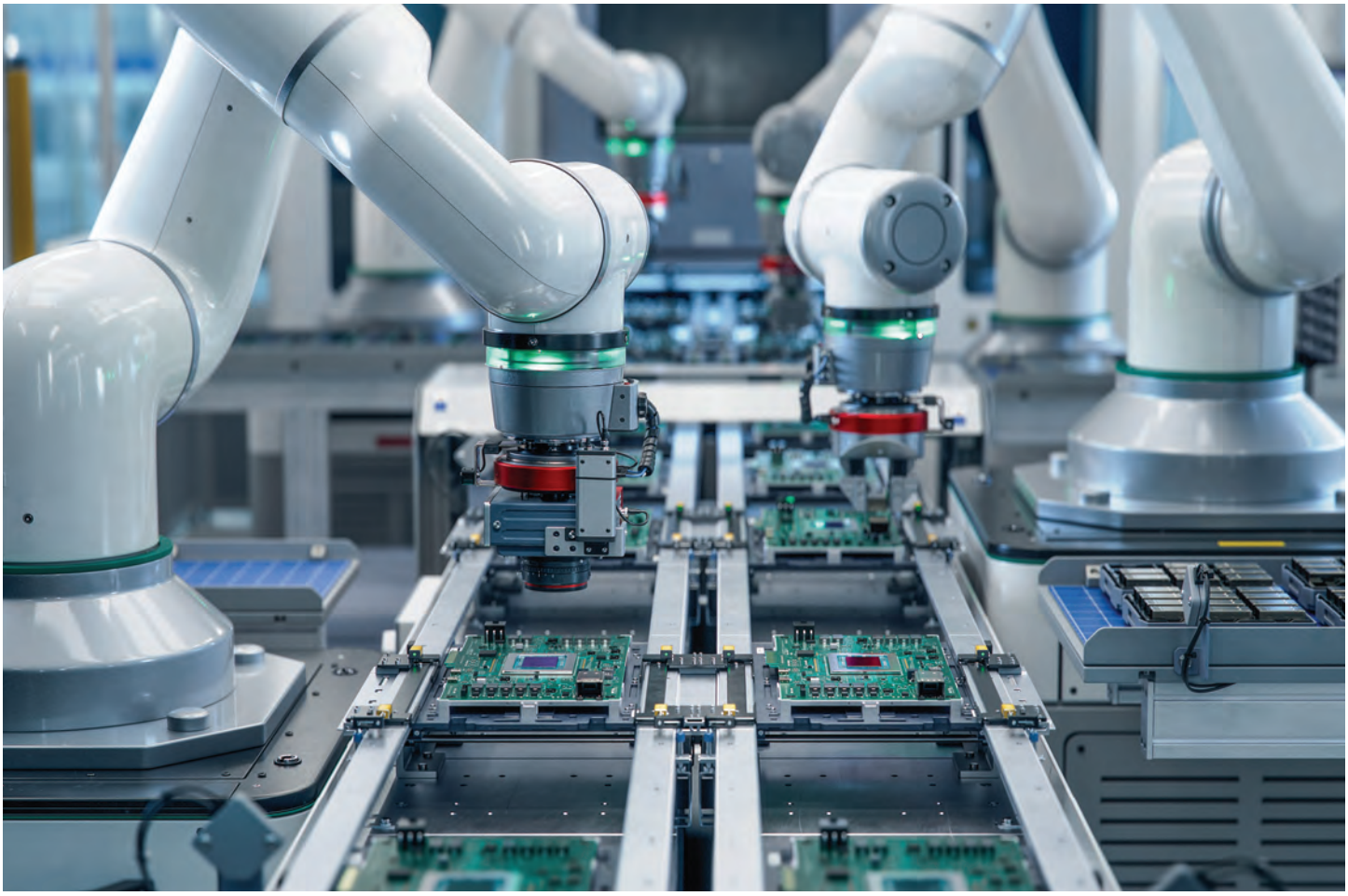
BY KATHY D'AGOSTINO | WIN AT BUSINESS AI

THE FIRST INDUSTRIAL REVOLUTION CHANGED MACHINES.

THIS ONE IS CHANGING HUMANS.



Eighty percent of manufacturers plan to increase their AI investment in the next two years. That is not just a trend, it's a line in the sand. Companies that invest in and engage with AI tools are gaining an advantage, while those that ignore the technology risk falling behind.

Across the industry, manufacturers are beginning to experiment with AI to solve practical problems: speeding up quoting, diagnosing equipment issues, analyzing production and financial data, improving quality control, and capturing institutional knowledge before it walks out the door.

What may surprise many people is that these are not massive IT projects led by teams of developers. More often, they are small initiatives led by owners, engineers, managers, and teams looking for ways to remove friction from everyday work.

In many cases, the tools cost less than a monthly cell phone bill.

Michael Esposito, owner of Newburgh-based Orange Packaging, is one example.

His family's fourth-generation manufacturing company has been producing custom packaging solutions for nearly 75 years. Operating out of more than 150,000 square feet of manufacturing space with multiple production lines, the company designs and manufactures thermoformed packaging, point-of-purchase displays, and merchandising solutions for customers across a range of industries.

Three years ago, he began experimenting with AI tools to see whether they could help streamline some of the company's most time-consuming processes.

One of the first areas he explored was operational and financial analysis. Using AI, he built an application that reduced his 48-hour quoting process to five minutes.

Feeding two years of financial data into an AI tool and prompting it to act as the company's CFO, Esposito uncovered something surprising: $300,000 in annual overtime that neither he nor his financially sharp brother had previously flagged.

In another case, using a $20-a-month AI subscription and his cell phone camera, he diagnosed a machine problem his team initially believed required a $4,000 motherboard replacement. The AI analysis revealed the machine only needed a software update and a spare computer they already owned, allowing the machine to run again the same day.

Since then, the company has continued using AI to tackle problems across the business, from operational bottlenecks to hidden cost drivers.

THIS IS NOT A TECHNOLOGY PROBLEM. IT'S A PEOPLE STRATEGY.

Talk to almost any small or mid-sized manufacturer about AI adoption, and you will hear the same thing: the technology is not the hardest part. The real challenge is people. It's overcoming skepticism and fear by helping teams understand how these tools fit into the work they already do. Even when AI produces clear results, resistance from teams is common.

"Changing habits is the biggest obstacle," Esposito said. "I've told the team this isn't about their jobs; it's about making their work easier." But even with those reassurances, fear and hesitation are still part of the transition.

That challenge also represents the opportunity. Manufacturing is full of natural problem solvers. The leadership opportunity is to provide guardrails and clarity, then enable people to see the potential of these tools for themselves and use them to save time, solve problems, and improve how the business operates.

Even the companies making the most progress are still figuring out what that path forward looks like.

THE RIFT NOBODY TALKS ABOUT

Here is what the success stories above do not show: even the most advanced AI adopters are still operating without a clear roadmap.

Michael Esposito has generated extraordinary results, yet he has no formal system for tracking the total savings AI has created for his company. The value is real; it's just not always visible.

He also knows his team carries critical institutional knowledge that AI could help turn into standard operating procedures. That opportunity is clear, but the path to capturing it has not yet been fully defined.

Other manufacturers are navigating similar questions. Randy Copeman, Chief Technologist at Milton-based Sono-Tek Corporation, sees the same dynamic. Founded in 1975, Sono-Tek designs and manufactures ultrasonic spray coating systems used in industries ranging from medical devices and microelectronics to clean energy and semiconductor manufacturing.

Sono-Tek's FlexiCoat Inline spray coating system.

His team is already using AI tools to support engineering work, internal research, and everyday communication. But their larger ambition, making decades of proprietary technical knowledge searchable and accessible through AI, is still evolving.

"The challenge isn't whether the technology works," Copeman said. "It's finding the right tools and resources to take it from experimentation to something scalable and systematic."

That gap between experimentation and structure is where many companies find themselves today.

Experimenting with AI produces moments of value. Applying it deliberately creates compounding value.

Most small and mid-sized manufacturers cannot afford unlimited trial and error. They need a starting point, a priority list, and a path forward.

Closing this gap requires a shift in how we view the "AI project." It isn't just a software rollout; it's a fundamental business initiative.

In an industry where margins are tight and the talent gap is widening, manufacturing leaders must align their focus, linking technology directly to operational efficiencies, clear ROI, and the growth of their people.

WHERE TO START? STOP ASKING WHAT AI CAN DO. START ASKING WHAT IS SLOWING YOU DOWN.

Successful AI adoption starts with people, not technology. For manufacturing leaders, this is about more than just ROI; it is about Return on Employee (ROE). While much of the public conversation around AI focuses on faster emails or marketing copy, the real opportunity for manufacturers lies in the "hard" operations.

AI works best when it acts as a force multiplier, absorbing the repetitive, manual tasks of quoting, data analysis, and technical troubleshooting. When you help an employee use AI to diagnose a machine in minutes instead of days, you aren't just improving a metric; you are increasing the ROE by making that employee more productive, creative, and indispensable.

FOCUS ON THE FRICTION

The most common and costly mistake businesses make is starting with tools instead of problems. They buy a subscription and then go hunting for a use case. This almost always produces underwhelming results and reinforces the idea that AI is a distraction rather than a driver of growth.

To turn AI into a competitive advantage, start focusing on the friction in your processes.

- **Identify the High-Value Bottlenecks:** Don't start with the easy stuff. Start by identifying the manual processes that consume the most time or create the most errors. Orange Packaging focused on building an estimating app that reduced a 48-hour quoting process to five minutes because it was their biggest bottleneck. Other manufacturers have found success by improving quality control and using AI to analyze inspection data and identify defects earlier in production. Others are applying AI to supply chain planning, forecasting demand more accurately, managing inventory levels, and anticipating disruptions before they impact production.

- **Score by ROI and ROE:** After identifying friction, prioritize opportunities where AI can deliver a double win: a clear ROI (dollars saved) and a strong ROE by freeing skilled employees for higher-value work. For example, capturing institutional knowledge from experienced technicians and engineers can create immediate ROE by helping newer employees troubleshoot problems faster, reducing downtime and service delays. Manufacturers are also using AI to analyze production data to improve scheduling and optimize throughput across the shop floor, increasing output without adding labor.

- **Standardize and Assign:** To scale beyond experimentation, you must build discipline. Choose a paid professional tool, standardize its use, and assign an owner. This includes ensuring your privacy settings are configured to keep company data out of public training models. Every AI initiative needs two things to move off the whiteboard: a name attached to it for accountability, and a clear usage policy, so the team knows exactly what data is

The Fear is Valid. The Paralysis is Not. Most security risks can be mitigated by moving from "free" tools to "pro" versions and setting three simple rules:

1. Check the Toggle: Most paid AI platforms allow you to turn off "training." This ensures your data stays private and isn't used to improve the public model.

2. Set a Data Policy: Clearly define what can be entered (operational friction points) and what cannot (proprietary code or protected customer data).

3. Appoint a Scout: You don't need a technologist; you need a "Scout" someone curious and organized to stay current on privacy settings as the systems evolve.

safe to share and what stays behind the firewall. *(See sidebar: The Fear is Valid. The Paralysis is Not.)*

- **Capture the Quiet Wins:** If you cannot show the results, you cannot make the case for growth. Document every win, no matter the scale. This includes massive wins, like flagging $300,000 in missed overtime, but also individual victories: an employee solving a stubborn machine problem in minutes, a manager identifying a new operational opportunity, or a team member mastering a new AI skill. When you track these "invisible" gains, you prove the value of the initiative to your team, your bank, and yourself.

THE REVOLUTION DOES NOT WAIT.

Going forward without a plan is the quietest risk a manufacturer can take. It won't lead to a dramatic collapse, but a slow drift where contracts and talent gravitate toward competitors who have mastered these tools.

The businesses gaining momentum right now are not the ones with the biggest budgets or the most developers. They are the ones that have built the discipline to use AI deliberately, documenting every success along the way. They understand that every problem solved and every new skill learned by an employee adds to their competitive edge.

Whether it is a small shop solving a tooling crisis or a multi-generational company like Orange Packaging uncovering hidden costs, the winners are those who didn't wait for a perfect roadmap. They started where they were, focused on the friction, and kept moving.

The first Industrial Revolution changed machines; this one is changing how humans work.

The gap between leading and following is no longer measured in decades. It is measured in the decisions you make this year.

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