


10 Must Do's for Manufacturers Using AI

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Manufacturing has always rewarded innovation, from CNC machinery to ERP systems, and artificial intelligence is now the next major shift. In my years of industry experience, manufacturers that adopt the right technology at the right time often gain a competitive advantage.

In conversations with manufacturers across many industries, I hear the same questions about using AI without adding unnecessary complexity.

What Have I Learned?

The manufacturers achieving the greatest success with AI are not necessarily the largest or most technologically advanced. They simply follow a disciplined approach.

I have found 10 common “must do’s” that help manufacturers use AI to improve efficiency, strengthen decision-making and create a more competitive operation.

1

Start With Clean Data

Artificial intelligence is only as good as the information it receives.

Many manufacturers get excited about AI capabilities before evaluating the quality of their existing data. Incomplete inventory records, inaccurate labor reporting, duplicate customer information and inconsistent production data can significantly reduce the effectiveness of AI initiatives.

The most successful manufacturers establish strong data management practices before expanding their AI efforts. They ensure that information is accurate, standardized and accessible across the organization.

AI cannot create reliable insights from unreliable information. The better your data, the better your results.



2 Integrate Your Systems

AI performs best when it has visibility into the entire business.

Manufacturers often maintain separate systems for accounting, production, inventory management, quality control and customer relationship management. These disconnected systems create information silos that limit AI's ability to identify trends and opportunities.

An integrated ERP system provides a single source of truth for AI analysis. Information can move seamlessly between departments, allowing AI tools to evaluate purchasing, scheduling, production, inventory and financial performance together rather than in isolation.

The more connected your systems become, the more valuable AI becomes.



3 Automate Routine Administrative Tasks

One of the quickest wins for AI is reducing administrative workload.

Manufacturing teams spend countless hours creating reports, responding to routine emails, entering data and searching for information. AI can assist with many of these activities, allowing employees to focus on higher-value work.

Rather than replacing personnel, AI helps eliminate repetitive tasks that consume valuable time.

When employees spend less time gathering information and more time acting on it, productivity increases across the organization.



4 Improve Production Scheduling


Scheduling remains one of the most challenging responsibilities in manufacturing.

Machine availability, labor constraints, material shortages and changing customer requirements create a constant balancing act. AI can analyze significantly more variables than a manual process and identify scheduling opportunities that might otherwise be missed.

By evaluating historical production performance, current workloads and capacity constraints, AI can help manufacturers create more efficient schedules and respond faster to disruptions.

The result is improved resource utilization and greater on-time delivery performance.





5

Use AI to Strengthen Forecasting

Forecasting has always involved a degree of uncertainty.

Manufacturers must estimate future demand, material requirements and production capacity while navigating changing market conditions. AI helps reduce uncertainty by identifying patterns within historical data and recognizing trends that may not be obvious through traditional analysis.

More accurate forecasting supports better purchasing decisions, lower inventory costs and improved customer service.

Manufacturers that can anticipate demand often gain a significant competitive advantage.

6

Predict Problems Before They Happen

The most valuable manufacturing problem is the one that never occurs.

AI can analyze machine performance, production data and maintenance history to identify warning signs before equipment failures or quality issues disrupt operations.

Predictive maintenance programs help manufacturers reduce downtime, extend equipment life and avoid costly emergency repairs.

Instead of reacting to problems after they occur, manufacturers can proactively address issues before they impact production.

7 Enhance Quality Control

Quality issues can quickly affect profitability and customer satisfaction.

AI-powered quality initiatives help manufacturers identify trends, detect anomalies and recognize potential defects earlier in the production process. By continuously evaluating production data, AI can help quality teams focus attention where it is needed most.

The goal is not simply finding defects faster.

The goal is preventing defects from occurring in the first place.

Manufacturers that consistently deliver high-quality products strengthen customer relationships and reduce the costs associated with rework and scrap.



8

Empower Employees with AI

The most successful AI strategies focus on people.

Employees make better decisions when they have immediate access to accurate information. AI can help answer questions, surface critical data and provide recommendations that support day-to-day operations.

From production supervisors to customer service representatives, employees can use AI to gain insights faster and respond with greater confidence.

The best AI implementations amplify human expertise rather than attempt to replace it.



9 Protect Your Data and Intellectual Property

As AI adoption grows, cybersecurity becomes increasingly important.

Manufacturers manage valuable intellectual property, customer information and operational data. Any AI strategy must include clear governance policies regarding data security, access permissions and acceptable use.

Successful manufacturers establish guidelines that determine how AI tools interact with company information and who can access sensitive data.

Trust and security must remain a priority throughout every AI initiative.



10 Measure Results and Continuously Improve

Artificial intelligence should deliver measurable business outcomes.

Manufacturers should establish key performance indicators before implementing AI projects and regularly evaluate results. Metrics such as labor efficiency, machine utilization, inventory turns, on-time delivery, scrap rates and profitability help determine whether AI investments are producing value.

The manufacturers seeing the greatest success with AI treat implementation as an ongoing process rather than a one-time project.

They continually refine workflows, improve data quality and expand AI capabilities based on real-world results.

With the right strategy in place, AI becomes a powerful tool for driving operational excellence, improving efficiencies and increasing profitability across the organization.





ABOUT THE AUTHOR

Adam Grabowski is the Director of Marketing at Global Shop Solutions. He is responsible for translating the company's business objectives into successful brand, marketing, and communication strategies to drive awareness, revenue and loyalty.

To learn more about how to simplify your shop floor with AI, call 1.800.364.5958 or visit www.globalshopsolutions.com.