

# The Future is Now with Hexagon's Solutions for Mid-Tier Manufacturers

## Building on Your Competitive Edge with Hexagon's Smart Machine Shop and Smart AI

### Takeaways

Hexagon's solutions are a continuum of rich software heritage, contemporary best practice, and strategic incorporation of emerging technologies.

Hexagon solutions reduce bottlenecks by automating processes leading up to NC code on the shop floor.

ProPlanAI, which uses customers' proprietary data for machine learning to automate programming tasks, is a potential game changer.

Hexagon offers AI that trains itself on proprietary practices and is shielded from external exploitation.

Proprietary practices captured by Hexagon's AI inform their CAM solutions, as well as the manufacturing company's next generation workforce.

Hexagon continues to pursue an open ecosystem strategy while offering the best solutions from its partners to address customer needs.

### Introduction

Mid-tier manufacturers operate in a hyper-competitive environment, under constant pressure to increase productivity, efficiency, and agility, while delivering top quality products and reliability in their contract fulfillment. To accomplish this, they must continuously embrace innovation while minimizing disruption and preserving and protecting the unique ways of working that are their competitive edge.<sup>1</sup>

CIMdata recently received an in-depth update on Hexagon's initiative for **smart machine shops** and advances in their solution offerings for mid-tier manufacturers. We were deeply impressed with their rich solution heritage in this domain and their thoughtful approach for introducing new capabilities that target the key challenges of this community.

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## Key Challenges for Machine Shops

Hexagon's initiative for smart machine shops seeks to address the following four top challenges:

**Streamlining manual tasks in manufacturing planning:** As shop floor tasks are automated and streamlined, engineering tasks are becoming a bottleneck.

**Bridging the manufacturing skills gap by retaining expert knowledge:** Knowledge from experienced employees is often lost when they leave or it takes years to share with new hires.

**Integrating new technologies without disrupting existing workflows:** New technologies can often cause workflow disruption leading to downtime during transition periods.

**Process standardization across different facilities and skill sets:** Different engineers, programmers, and machinists use different strategies for similar parts, often with no feedback loop, leading to inconsistencies and inefficient resource utilization.

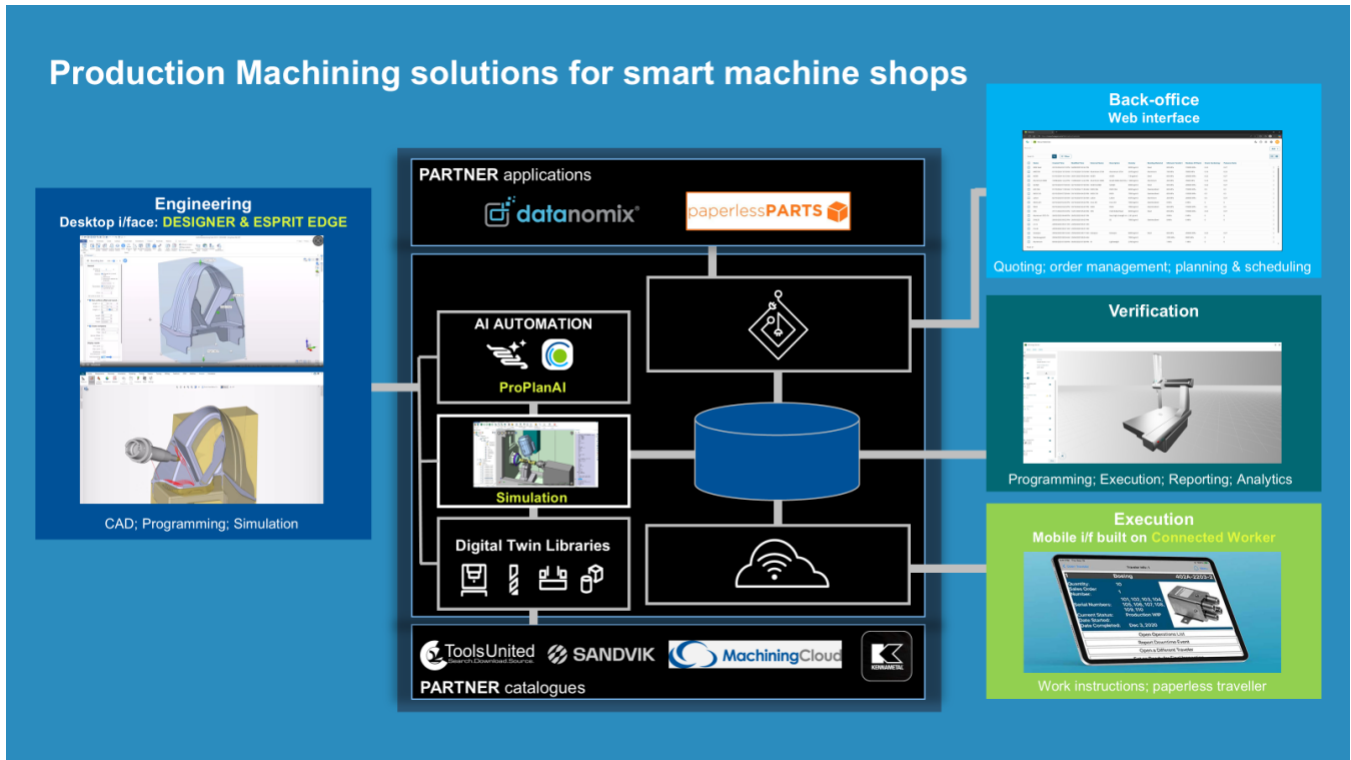
## Hexagon's Solutions for Mid-Tier Manufacturers

The solution strategy for smart machine shops guides development, extension, and integration of Hexagon's software portfolio. The aim is to drive productivity and efficiency in machine shops of mid-tier manufacturers by addressing challenges like process standardization and the manufacturing skills gap through integrated, workflow-based solutions leveraging digital twin, AI, and automation.

### What It Is

Hexagon's production proven software solution portfolio includes products spanning manufacturing processes such as mold and die, production machining, and sheet metal fabrication. In addition to metals, Hexagon's solutions cover processing of wood and stone. Of particular interest for the A&D industry is that Hexagon's solutions cover composite and additive manufacturing. Improved support for turning, which currently includes lathes, mill-turn, and Swiss machines, is scheduled for Q1 2026.

The initiative is to build integrated workflow-based solutions designed to combine data from different streams, making the right data available to the right people at the right time. This involves leveraging upstream **engineering** data from CAD and CAM, integrating **planning** processes like quoting and scheduling, seamlessly delivering data to the shop floor for **execution**, and linking to quality inspection for **verification** and process tweaking. The solution, as illustrated in Figure 1, relies on a digital backbone of digital thread, digital twin, and AI/automation to provide role-based data views.



**Figure 1: Hexagon’s Solution Architecture for Enabling Production Machining Workflow Between Four Personas—Engineering, Back Office, Verification, and Execution**  
(Courtesy of Hexagon)

## How It Is Built

Hexagon’s production software solution portfolio has been primarily built through acquisitions. This has resulted in a best-of-breed portfolio of software elements targeting the needs of mid-tier manufacturers’ machine shops.

Hexagon uses their Cloud capabilities for integration and orchestration across their software and partner-provided applications and libraries, and integration with customer applications as necessary. Hexagon Cloud strategy supports an open ecosystem to help integrate a customer’s partners in collaboration on product development, manufacturing, and support. It uses API’s and industry standard protocols to achieve data integration.

The strategy for smart machine shops is not standalone. It relies heavily on an actively growing partner ecosystem to contribute to workflows and processes, with a growing number of best-in-class applications and digital twin libraries. The solution is open and modular, not forcing a rigid workflow but allowing users to deploy only the necessary pieces, while ensuring they can connect with external systems and share data bidirectionally.

## Value Focus

A major focus of Hexagon’s latest solutions for mid-tier manufacturers is reducing bottlenecks by automating processes leading up to NC code on the shop floor. Their goal is to shift the machine shop reality from “machines sitting idle waiting for NC code” to “an inventory of NC code ready and waiting to be called up and loaded as soon as the machine has completed one run and is open to run the next.”

Another focus is addressing the manufacturing skills gap. Hexagon provides value here with two techniques. First, they deploy AI to capture and reapply learnings from specific machine shop data. Second, they provide simplified access to best practice guidance within application workflows.

## Features of Note

Hexagon solutions for mid-tier manufacturers include digital twin libraries, specifically for tooling and fixtures, centralized on the cloud to ensure accessibility, easy sharing, and updating for all machine shop programmers.

Hexagon's new productivity tools are designed to enhance familiar desktop environments by incorporating cloud-based technologies, supporting knowledge capture, and addressing the skills gap by reusing historical data.

## AI Enablement as a True Differentiator

Hexagon's application of AI is more than a feature; it is a strategic element of their Smart Machine Shop solution; and their implementation is designed to provide and protect unique competitive advantage for each of their customers. The key to this value proposition is providing AI and automation tools that learn from specific machine shop data rather than generic data. To that end, all the AI logic within ProPlan AI was developed by Hexagon.

### ProPlanAI

ProPlanAI is a machine learning (ML) system embedded within Hexagon's flagship CAM software, ESPRIT EDGE, that allows companies to train the system using their own historical programs and models. This capability automates up to 95% of the process-creation part of programming and standardizes the process by basing recommendations on company-specific best practices.

ProPlanAI is on track to be a game changer. Its unique focus on using customers' proprietary data for AI training is a high-value differentiator compared to competitor offerings, which use generic data.

### Hexagon Copilot

Hexagon Copilot has been developed by Hexagon to bridge the manufacturing skills gap. Within Hexagon applications, Copilot offers a simplified way to access extensive help files, providing contextual responses to simplify the learning curve for younger engineers. The help files within Hexagon Copilot close the feedback loop of learnings from the field encapsulated as guidelines for engineers, programmers, and machinists.

## Conclusion

Mid-tier manufacturers are faced with conflicting demands and constraints. They operate in a hyper-competitive environment. They must continuously embrace innovation while minimizing disruption and preserving and protecting the unique ways of working that are their competitive edge. On top of these realities, they often have limited money, limited time, and a low tolerance for risk.

With full recognition of these challenges, Hexagon offers a robust portfolio of production proven software for mid-tier manufacturers, which they manage under their Smart Machine Shop solution strategy. This strategy guides development, extension, and integration of Hexagon products within an open ecosystem of partner solutions that has been designed to drive machine shop productivity and efficiency to new levels. Additionally, it provides an architectural framework for integration, collaboration, and enablement of both workstation and cloud compute environments.

ProPlanAI, which informs Hexagon's CAM solutions and educates the manufacturing company's next generation workforce is a potential game changer. Using the customers' proprietary practices and

performance data, rather than general industry data, for ML to automate programming tasks and guide the workforce extracts full value from the company's collective wisdom. Further, this competitive intelligence is shielded from external exploitation.

As an example of targeted value, embedding ProPlanAI within Hexagon's flagship CAM software, ESPRIT EDGE, has allowed companies to train the system using their own historical data and automate up to 95% of the process planning task. This capability has relieved the bottleneck in providing NC programs to the shop floor.

In CIMdata's view, Hexagon's solutions for mid-tier manufacturers are worthy of a serious look. For more information, please see <https://hexagon.com/products/product-groups/computer-aided-manufacturing-cad-cam-software>.

## About CIMdata

CIMdata, a global strategic management consulting firm, provides services designed to maximize an enterprise's ability to design, deliver, and support innovative products and services. For more than forty years, CIMdata has provided industrial organizations, providers of digital technologies and services, and investment firms with world-class insight, expertise, and best-practice methods on a broad set of product lifecycle management (PLM) topics and the digital transformation they enable. CIMdata also offers research, subscription services, publications, and education through certificate programs and international conferences. To learn more, visit [www.CIMdata.com](http://www.CIMdata.com) or email [info@CIMdata.com](mailto:info@CIMdata.com).