Datacraft Solutions & A Large Piston Assemblies Manufacturer

Manufacturer Profile

A major manufacturer of piston assemblies for automotive and small engine applications

100,000 sq ft plant opened in 1995

Products: Casts, manufactures, and assembles pistons and piston cylinder sets for the automotive market

Major customers: Tier 2 manufacturers such as Briggs & Stratton, Tecumseh, Kawasaki Motors, General Motors

Employees at plant: 250, 24/7 operation year-round

Buyer/planners on staff: 1

27 parts purchased from outside suppliers

Supplier base: 2 for 95% of parts

Kanban signals: 600 signals generated monthly

"Once your first supplier acknowledges the first signal, you have value."

– Lean Manufacturing Manager

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The Challenge: To help a large manufacturer of piston assemblies move to the next kanban level–and get suppliers and manufacturer on the same page.

The Manufacturer Story

Since adopting lean manufacturing, the manufacturer had gone through several phases of manual kanban and become frustrated with its far-from-lean limitations. With 95% of purchased parts coming from just 2 suppliers, a smooth supplier-manufacturer process might seem like a snap, but high volume—millions of parts and over 600 kanban releases each month—revealed major pitfalls in the manual system.

With a goal of increasing raw material and inventory turns by at least 10%, the Plant Manager determined in early 2004 that they needed to move their system to the next level to solve obstacles such as these:

- Long lead times of as much as 6 weeks
- Uneven supplier reliability, with lost or duplicate communications, late shipments, and hassling over who was responsible to pay expedited freight
- A kanban card system that "never worked" and had their Buyer/Planner spending much of her time and resources auditing cards and tracing lost cards
- Wasting time and effort on routine transactions. The Buyer/Planner gives an example: "I'd email the supplier what we'd used. Nothing would happen. Then I'd fax them the same information. They'd tell me they didn't get the fax. Phone calls and faxes went back and forth and no one was sure who had dropped the ball or what was expected."

According to the Plant Manager, moving to the next level—from "push" to "pull"—is a strategic step in any company's implementation of lean manufacturing: "If you want to be as lean as you can be, the right way is to have your suppliers in a 'pull' system."

Choosing an Electronic Kanban System with the Right Fit

In addition to the generic pull system that electronic kanban would support, the company had other specific requirements for what their new system should do:

- Be driven by demand from the client
- Enable both client and supplier to view critical information *at the same time*
- "Close the loop" from initial order to checking received goods into inventory
- Be user-friendly for non-computer personnel, requiring minimum in-house training
- Offer an easy-to-use, affordable supplier solution
- Provide 24/7 technical support for manufacturer and supplier alike

Along with this 'requirements checklist' was something at least as important—A vendor and a system that would meet the company where they were, get everyone on the same page electronically, and then help the company move to the next level when they were ready. The Materials Manager was put off by some of the all-or-nothing software candidates. "People want to sell you extravagant systems, and they don't really listen when you say you don't need something complicated with tons of bells and whistles that are overkill. Datacraft accommodated us where we were, but they were also ready to help us grow when we were ready to take the next step." As the Plant Manager says, "We were looking for a partner, and we chose Datacraft because of their willingness to help us as a partner."

Low to no "IT impact": Another virtue of the Datacraft system was its lack of IT impact. There's no need to write a business case for new infrastructure or install a big backend database—all that's required is a web browser and Internet connection.

Moving Step-by-Step from Visual Cards to Best Practices

In choosing Datacraft, the company's Lean Manufacturing Manager was particularly impressed with two things that set the system apart:

"One, a big selling point for us was that Datacraft was a defined system that has benefited from many inputs of lean over the years. As users think of new features, they're incorporated in almost real-time dynamic upgrades that everyone profits from. Unlike most software companies, they don't do a customization for one client that the others never see. There's a real synergy among Datacraft customers with everybody gaining from everyone else's experience."

"Two, Datacraft accommodated our plans to move step-by-step. In the first phase, we wanted to keep our card-based system but replace the inefficient fax-and-phone overhead with visual, electronic communication. Later when we wanted to add real-time barcode scanning on the floor, Datacraft could support that integration."

This "start where you are" approach allows the customer to see real improvements rapidly without the pain of an overnight transformation to pure eKanban. For this manufacturer, that meant starting out keeping their manual cards and large Visual Board on the plant floor. Assembly operator and Buyer/Planner roles wouldn't change much, but the supplier-Buyer/Planner relationship would see immediate benefits from replacing faxes and phone calls with web-based electronic communication.

With a 10 % improvement in raw material and inventory turns as the bottom-line goal, Datacraft worked with the customer to lay out objectives and a step-by-step plan for how to get there. Targets included:

- Reducing 14 manual steps and repetitive card handling to 8 largely-automated steps and minimal card handling
- Providing management with centralized performance data. Some examples: Historical data on on-time on-quality shipments; repository data to guide Six Sigma continuous improvement efforts; overviews of all alerts and notifications by kanban over time
- Immediate notification to suppliers of usage—within 24 hours via trackable email instead of hit-or-miss by fax
- Supplier acknowledgement of usage—within 24 hours instead of "when they got around to it"
- Supplier notification of shipment in real-time, instead of a day or more after the fact
- Improving vertical integration with suppliers, with suppliers able to access usage figures instantly rather than having to do cumbersome calculations
- Reduced costs for expedited freight (and less finger-pointing) based on visible data about what caused any late deliveries
- Future integration with the plant's next level of kanban, real-time scanning

The Materials Manager explains what this was designed to add up to: "Strong manufacturer-supplier partnerships based on everyone being on the same page."

30 Days to Realize Value

With Datacraft's project support and web-based training, the customer moved to live deployment in only 30 days:

- First month: In-house staff training and web-based supplier training and setting up the system, which the Buyer/Planner describes as "not complicated at all. It's basically one step after another, do this, then do this—completely self-explanatory." **After 30 days, the first supplier goes online.**
- Second month: A 30-day trial run, with old fax and new web-based systems in parallel, allows trust to be built in the system while the old system is still there for backup. **By the end of the month, confident the system works, both suppliers are 100% online—no faxes, no physical cards, no waiting for responses that a signal was received.**

According to the Lean Manufacturing Manager, the benefits of the Datacraft system were immediate. "Once your first supplier acknowledges the first signal, you have value."

"Good suppliers want to be visible. And the ones that resist are the reasons you have the system, because being visible can turn even problem suppliers into good suppliers."

– Lean Manufacturing Manager

...What the Datacraft system adds up to: "Strong manufacturer-supplier partnerships based on everyone being on the same page."

– Materials Manager

What the "Start Where You Are" System Looked Like: Cards + Visual Electronic Communication

In line with the manufacturer's desire to evolve to eKanban in phases, the initial Datacraft deployment blended cards with visual electronic communication:

1. The Materials Manager calculates card levels based on demand, then creates kanban card templates, defines their workflow rules, and finally prints out the cards.

2. When the assembly operator pulls a box, she places the kanban card on a large Visual Board.

3. Once a day, the Buyer/Planner collects kanban cards and enters them into the system. The Datacraft Signum Control Panel is updated with the new orders.

In the next eKanban iteration, the company plans to replace steps 2 and 3 with the assembly operator scanning the box on the floor in real-time—freeing the Buyer/Planner from the "walking the floor" role to concentrate on the analysis and strategic planning the Signum knowledgebase makes possible.

4. The supplier receives a "new kanban" notice and clicks "Confirm new kanban". (The system has rules set up for this kanban and supplier, such as time for confirmation. If there's no confirmation in time, it sends another alert to the supplier and Buyer/Planner.) In the confirmation, the supplier says whether they can meet the required quantity on the expected date.

5. When the Buyer/Planner refreshes the Control Panel, she sees at a glance: Is the quantity confirmed? Is the expected date confirmed? Was anything modified? What is due today? It's not necessary to walk the floor to find out what's happening.

6. When the supplier ships the order, they mark the kanban "shipped," providing shipping notes on tracking number, carrier, and so forth.

7. When the Buyer/Planner refreshes, she sees the kanban marked "en route".

8. Lastly, closing the loop of communication, the materials handler receives the order in inventory and verifies that the quantity matches. The kanban is updated, coming off the open kanban list and now in inventory as available for use.

"Good Suppliers Want to Be Visible, Others Are the Reason You Have the System"

The ease of supplier transition depended on whether they saw visibility as a plus or a minus. According to the Lean Manufacturing Manager, "Good suppliers want to be visible. And the ones that resist are the reasons you have the system, because being visible can turn even problem suppliers into good suppliers."

Of the manufacturer's 2 main suppliers, during the 30-day trial period one took to the new system readily and one resisted, sticking with the manual system until the final cutover. The Buyer/Planner believes that one difference was in how they managed their inventory. "They're used to batching production, regardless of customer demand. They weren't used to clear commitments. They'd say, 'The customer is unrealistic,' or 'Just give me the PO and let me handle it my way.' They were used to telling us what they'd ship us, when, rather than being driven by our needs and timeline.

"But even with them, after about 2 months they realized how much easier it was. Once we put in our consumption, they could see exactly what they owed me, what's late, what's shipped, and what's about to ship. They can print the kanban card, view the kanban audit trail, and see every interaction with the kanban, just like we can."

"A supplier who cares about their customers," notes the Materials Manager, "really embraces the system as a way not only to deliver better but to understand and plan for our needs proactively." He cites an example of the improved supplier relationship: "The Curator web portal is a collaboration tool for mediation and interaction between us and our suppliers. As Datacraft says, 'There's one 24/7 real-time version of the truth for everyone.' It makes a real difference in our relationship."

The Buyer/Planner gives an example: "If the Buyer/Planner and the supplier need to talk about why a shipment was late, they can both look at the same data. If a shipment is past due according to the rules, we don't have to argue over who pays the expedited freight!"

However, the Materials Manager is sympathetic to suppliers who have to deal with different customers with different systems. "That's why it's such a plus that the Datacraft system is simple to use, web-based, and free for the supplier."

Benefits to the Manufacturer

These are some of the benefits the Materials Manager has documented:

- Reduced time calculating and recalculating kanban levels
- Almost 1/3 increase in raw material turns (102 to 136)
- Total inventory turns up by almost 20%, double the 10% target
- Decreased dollars in inventory
- Greatly streamlined operations, with more Buyer/Planner time going to planning than to hassling with suppliers
- Enhanced data flow. Where it took a week to tally up usage, now it's visible in real-time

Benefits to Suppliers: Reduced Hassles, Improved Planning for Customer Needs

A supplier who uses the Datacraft Curator tool comments that learning and using the system was "no big deal," and there were immediate benefits:

- No more faxes or phone calls to check order details, now viewable at any time on the web
- Electronic management of spikes in demand
- No more guesswork and no fingerpointing over late deliveries: the data tells the story
- Always knowing what the customer expects and being better able to plan for their needs

The Next Phase: Completely Real-time, Point-of-Use

The manufacturer understands that kanban is implemented by degrees. While starting out with a card-based system, they see the next step as going completely real-time and electronic, providing handheld scanners to assembly operators on the floor and allowing the Buyer/Planner to focus on analysis and planning. The Datacraft system provides the necessary scanning integration. At each step, updates to the shared database trigger the *next step* and let manufacturer and supplier see exactly what's happening:

1. The assembly operator scans the product as used. The kanban is now in the system.
2. In Signum, the Buyer/Planner monitors status, communicates with suppliers, and establishes order points.
3. In Curator, the web-based supplier tool, the supplier confirms the order.
4. In Curator, the supplier analyzes re-order points and reports shipments.
5. At the receiving dock, the product is scanned back into inventory.

About the Datacraft Solutions System

The Datacraft Solutions web-based kanban automation system that PS/HTL adopted consists of two integrated components, Signum and Curator.

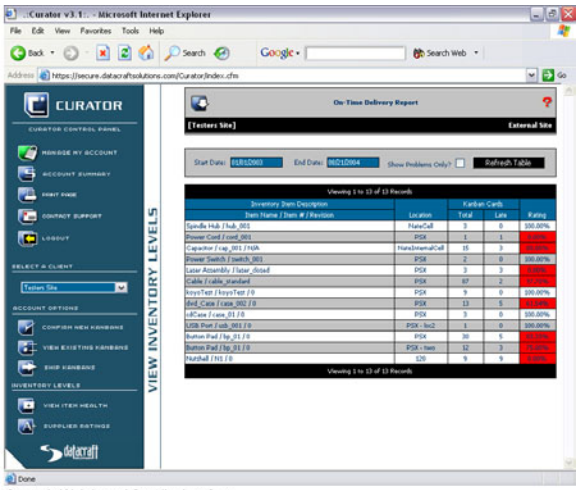
SIGNUM The Manufacturer's Tool

Signum integrates inventory barcode scanners and kanban cards into a simple browser-accessible interface where buyers/planners can plan and calculate their kanban requirements, automatically issue replenishment signals to suppliers, confirm receipt, and monitor status on Signum's visual board. Customizable alerts and control signals control routine transactions and exceptions.

With each transaction stored in Signum's data repository, process improvements can be guided by hard facts on supplier performance and reliability.

CURATOR The Supplier's Tool

Curator allows suppliers to view and confirm kanban orders as well as anticipate and prepare for upcoming changes in demand. When the supplier confirms, denies, or ships an order, inventory and order status are automatically updated in Signum. When a kanban signal is triggered, suppliers receive an email link to the Curator web page, and simply click to view the order details.



Curator's Web-based Supplier Interface

Both the manufacturer and supplier interfaces are intuitive and visual. With accessibility in mind, Datacraft has even supplemented the green, yellow, and red color-coding of signal health with easily recognized shape cues.

Rock-Solid Reliability: Our back-end is a server pool transparent to our clients. If any one of the servers should fail for any reason, connections are seamlessly transferred to the others instantaneously. Datacraft guarantees **99.999% carrier-class guaranteed uptime**, with 3 OC-3 connections to the data center and both in-house and offsite mirroring and redundancy, as well as around-the-clock closed-caption video.

Exceptional Support: Datacraft's commitment to customer support goes far beyond 24/7/365 availability. Their support consultants are highly knowledgeable about real-world lean manufacturing as well as Datacraft products, and they are committed to customer success.

Benefits to the Manufacturer from the Datacraft Adoption

- Reduced time calculating and recalculating kanban levels
- Almost 1/3 increase in raw material turns (102 to 136)
- Total inventory turns up by almost 20%, double the 10% target
- Decreased dollars in inventory
- Greatly streamlined operations, with more Buyer/Planner time going to planning than to hassling with suppliers
- Enhanced data flow. Where it took a week to tally up usage, now it's visible in real-time
- True partnership with key suppliers based on common knowledge pool and data-based communication

"Datacraft accommodated our plans to move step-by-step…[keeping] our card-based system but replacing... fax-and-phone overhead with visual, electronic communication.
Later when we wanted to add real-time barcode scanning on the floor, Datacraft could support that integration."

-- Lean Manufacturing Manager

"If the Buyer/Planner and the supplier need to talk about a late shipment, they can both look at the same data. If a shipment is past due according to the rules, we don't have to argue over who pays the expedited freight!"

-- Buyer/Planner

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Setting the standard in Kanban Automation