

Vendor-Managed Kanban Stops Order Whiplash

Outokumpu Copper Franklin, Inc.

A supplier of bent copper tubing for air conditioning manufacturers

Location: Franklin, Kentucky

Customers: Large manufacturers of air conditioners, including companies in Mexico and Canada

70 kanban signals received each month from the manufacturer

7.6 million copper-tube hairpins sold using vendor-managed kanban

Inventory turns per month:
Before e-kanban: 31
After e-kanban: 62

Outokumpu Copper Franklin (OCF) has a long tradition of going above and beyond to serve their customers. Originally suppliers of straight copper tubing to manufacturers who did the bending, OCF realized they could add value by getting their customers out of the bending business. Their offer, "Give us the bending machine and we'll give you the finished bent-copper tubing," has benefitted everyone.

This case study is another example of OCF's extraordinary customer-service tradition.



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Supplier takes e-kanban lead for "Build what you've sold" breakthrough

Does a supplier have to suffer the consequences of their customers not knowing what they want and changing their orders as fast as they send them?

That was the question Scott Stringer, the Operations Manager for Outokumpu Copper Franklin (OCF), was asking himself at 11 PM last New Year's Eve, thinking that he had to find a way to avoid another year like the last. OCF, a supplier of bent copper tubing for large air conditioning manufacturers, seemed to be on an endless treadmill of reacting to customer requirement flip-flops and problems like these:

- Long lead times of as much as 6 weeks
- Non-stop last-minute modifications to order forecasts
- Customers' difficulties keeping track of what they'd ordered and what they'd consumed
- Strings of e-mails saying, "We forecast this... but please rush this...!!"
- Too much capacity going to build parts that the customer turned out not to need until later
- Customer service reps such as Amy Willis spending a day or more a week dealing with last-minute changes, including costly (and stressful) expediting of orders and Friday-afternoon emergencies that required "turning the plan upside down" to produce a part needed Monday

All of this was leading OCF to a "We need to build just in case" mentality to protect against being caught short when the customer changed their minds—leading to a costly cycle of overbuilding and inventory pile up.

Computer Systems Too Far Out of the Loop

Computer systems seemed to be more a part of the problem than a part of the solution. On the customer side, a large ERP system at one facility wasn't able to calculate requirements correctly. "ERP wasn't real-time enough to link us with what the manufacturer really needed," said Stringer. "The Just-in-Time list wasn't what they really wanted or needed, but what the computer thought they needed."

On the supplier side, a cumbersome tracking system that had to be updated with schedule, shipping and shopfloor information tied down a half-dozen people trying to keep up with the constant churn.

Googling "e-kanban" Leads to an Eleventh-Hour Phone Call

Stringer thought the solution might lie in something he'd heard of, systems that could bring the customer's shop floor into sync with the supplier production floor in real time. He Googled "e-kanban" and from the results, sent out a half-dozen e-mail inquiries, not really expecting to hear anything until the holiday was over.

Imagine his surprise when his phone rang a few minutes before midnight! "If you can e-mail me this late, I can call you this late." It was Tony Diana, lead Sales Representative from Datacraft Solutions, and he was interested in hearing about OCF's dilemma. "He listened intently to everything I said," Stringer marveled. Finally Diana said, "I think we may have an answer."

Datacraft's Innovation: Let the Vendor Manage the Order, Using E-Kanban

The answer percolating in Diana's head involved using Datacraft Solution's powerful e-kanban tools in a completely new way. Instead of the manufacturer managing the order using e-kanban—the model Datacraft was used to—a customized solution would put the management in the vendor's hands.

This "vendor-managed kanban" (VMK) fit with what Stringer was hearing from his customers: What we're good at is running our factory and manufacturing air conditioners—not planning. Our bottom line is simple: We don't want to run out of parts. If OCF can figure out how to do that, we'll be happy!

Datacraft's developers and Stringer put their heads together and figured out a strategy that would essentially bypass people and connect the customer's production usage directly with OCF's shop floor.

- As the customer consumed boxes, they would scan a barcode that would signal the supplier that a replacement was needed – almost like having a video camera at the manufacturing plant. Instead of sending an order, the customer would be sending a real-time consumption notice.
- Working with Datacraft, OCF would develop rules based on how long it takes to build and ship a replacement. These rules would be used to calculate the right flow of materials to the customer.
- Knowing the real target, OCF can build what's needed, responding to actual consumption instead of fallible forecasts.
- When the manufacturer receives the order, they scan it in to the system, closing the loop.

That was the outline for a solution. The next step was making it real.

Intensive Planning Session Creates Vendor-Managed E-Kanban in a Week

Stringer and Datacraft used the “kaizen” approach, an intensive process workshop that brought together everyone at OCF involved with an order—key people from the shipping department, the business unit leader, the machine setup person for part changeovers, the inside sales person, and Customer Service Rep Amy Willis—plus Datacraft's consultants. Datacraft's questions and the OCF answers built rules based on real-world facts. Every time a certain box was scanned, a “build” order would be sent to OCF's shop floor. If the customer scans 20 boxes a day, that translates to 20 orders real-time. For OCF, seeing the daily rate shows them exactly how customer usage is running.

Day by day, Datacraft's consultants were building the system, a new version of the Curator supplier portal providing an interface for vendor-managed kanban. As Datacraft's CTO Justin Diana says, “Thanks to Scott, we were really getting inside the mind of the supplier, seeing how they work. If we didn't have what they needed, we wrote the code that night and had it the next day.” Stringer believes that was the key to their success: “We came at this as partners. If they didn't have an answer right away, they'd figure out a way to come up with one—usually the next day!”

Curator 4.2 Supplier Value Pack Adds Machine-to-Machine Communication

The previous version of the Curator supplier web portal was limited to suppliers confirming order signals and their shipments. Datacraft's previous experience developing integration strategies to link their web-based manufacturer e-kanban system, Signum, with the manufacturer's large ERP and MRP systems, provided the knowledge needed to extend Curator. Datacraft was able to connect the manufacturer's bar-code scanner signaling consumption with the supplier's shop floor system. As OCF builds parts, the system is automatically updated. “Absolutely,” Stringer says, “this could never have been done manually.” Nor could it have been done by the large ERP systems that are one or two steps removed from real-time production floor realities.

Results: Production Matches Usage, Clear Accountability, and Supplier Can Focus on Process Improvements

With the new system, everyone has visibility in real time to the status of every kanban in the system—whether manufactured, shipped, or received. Discrepancies all go to the same place; no one has to try to run them down in e-mails or phone calls. The web-based interface allows everyone to see the status of a kanban at any time. For Customer Service Rep Amy Willis, “showing who does what, when, gets us out of trying to prove who's right and who's wrong. It's a major change.” For Stringer, the web interface means “I often take a look at the open cards over breakfast from my home computer!”

“We came at this as partners trying to solve a problem. If they didn't have an answer right away, they'd figure out a way to come up with one.”

*— Scott Stringer,
Operations Manager, OCF*

E-Kanban Eases Globalization Challenges

Globalization has increased the complexity of supply chain management. Synchronizing production efforts poses new challenges when manufacturing customers may be in different countries, speaking different languages.

According to OCF's Scott Stringer, vendor-managed e-kanban makes these challenges manageable and has helped keep OCF competitive in this new environment.

"E-kanban has made the flow of materials smooth, and the information transcends the language barrier." One of their customers, for example, is a large air-conditioning manufacturer in Mexico, but with e-kanban OCF is in synch with them on a real-time basis. Because the system is web-based, all they need is a password, a computer, and an internet connection.

Most important, Stringer and Willis can now focus their efforts on what they like to do and are really good at: proactive work on the customer's behalf. For example, Stringer can pull reports on consumption rate by product. If he sees a sporadic signaling of consumption calls—2 boxes used in 3 days instead of 3 in 2, for example, he can investigate to head off any problems. Or if OCF doesn't get a "received" notice when they expect it, he can call the customer and ask what's happening... Which might be as simple as their saying, "We got it, but we had some extra boxes so it's still sitting on the truck and has been logged in."

The system provides *actionable information*—information OCF can use to do something that directly affects customer satisfaction and everyone's bottom line.

"This is the greatest inventory reduction system I've ever seen!"

— *Scott Stringer*

Bottom-Line Benefits

Stringer summarizes these bottom-line benefits:

- All production initiation is based on immediate needs of customers.
- Inventory turns are up from 31 per month before they started with VMK to 62 turns per month after. Stringer's comment: "This is the greatest inventory reduction system I've ever seen!"
- The 40% of time spent expediting orders and doing last-minute fire drills has been reduced to almost zero.
- Sales have increased because OCF is using 100% of its capacity to build parts already sold.

Lessons Learned and Next Steps

In the next phase, OCF plans to roll the system out to other manufacturing customers. They started with the hardest, a customer with 25 part numbers. The next one also has 25, then 20, and the fourth has only 1.

From the experience with the first manufacturer, they've learned that they can avoid the manual inventory they had to do to sync up the electronic system at start-up by logging customer information before the cutover. Specifically, Stringer recommends:

- Load all the part numbers in *before* training the customer
- Issue your own cards internally, loading all the transactions into the system just as the customer would and allowing testing for problems in advance
- With no backlog, cards can be issued and reports can be run from day one. The live data also means that when OCF trains the customer to use the system, they'll be showing them the customer's own, live data, adding to the "wow" factor.

And the best next step for Stringer: He can spend New Year's Eve 2005 celebrating a banner year and looking forward to 2006!

"Showing who does what, when, gets us out of trying to prove who's right and who's wrong. It's a major change."

Amy Willis,
Customer Service Representative



About CURATOR The Tool for Vendor-Managed Kanban

Datacraft Solutions' Curator 4.2 provides web-based kanban automation with powerful functionality for both suppliers and manufacturers. In the manufacturing plant, as the customer consumes boxes, they scan a barcode that signals a replacement is needed (Figure 1).

Figure 1. Curator 4.2 Issue Screen

Color	Release	Part #	Part Name	Cell Name	Location	PO #	Status	Pending	Ordered	Ordered Date
Yellow	40308	123	Finished 1.0	VMK Cell			Queued	Release Approval	125	8/05/2004 03:17 PM
Yellow	40307	123	Finished 2.0	VMK Cell		555666	Queued	Release Approval	175	8/05/2004 03:17 PM

On a computer screen in the production cell, suppliers see the customer needs in real-time. Cell personnel monitor the open kanbans, and produce parts in exactly those quantities. Everyone can see the status of any kanban at any time, day or night. For every part produced for a given customer, the supplier can view item health statistics such as lead time, number of cards, number on order, number in stock, and number on hand (Figure 2).

Figure 2. Curator 4.2 Item Health Statistics

Color	Part #	Part Name	Cell Name	Location	Lead Time	Card Qty.	On Order	In Stock	On Hand	Outage
Red	123	Finished 2.0	VMK Cell		5 Days	175	1 Cards	1 Cards	175 Units	7.00 Days
Red	123	Finished 1.0	VMK Cell		5 Days	125	1 Cards	1 Cards	125 Units	5.00 Days
Green	mr4	mraw4	VMK Cell		5 Days	4	0 Cards	619 Cards	2,476 Units	5.50 Days
Green	mr3	mraw3	VMK Cell		3 Days	12	0 Cards	10 Cards	120 Units	5.00 Days
Green	f1a	Finished 1	VMK Cell		2 Days	5	0 Cards	3 Cards	15 Units	2.50 Days
Green	F2a	Finished 2	VMK Cell		5 Days	5	0 Cards	26 Cards	130 Units	5.20 Days

From the web interface, the supplier keeps the manufacturer continually up-to-date on release status, such as confirming they'll fill the order in the requested time frame (or sending a modification), and avoiding surprises by providing detailed advanced shipment notice. Suppliers also can view their performance rating for each of their customers, and get reports on all open or historic releases.

Customers can log into their own web-based view to scan new orders and receive open orders by barcode, part number, or packing slip (allowing one-click receipt of a truckload of multiple orders). Like the supplier, the customer can also get reports on open or historic releases and view complete item health statistics.

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.

"Because the system is web-based, I often take a look at the open cards over breakfast from my home computer!"

*Scott Stringer,
Operations Manager, OCF*



Setting the standard in Kanban Automation
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