

Signum ERP integration synchronizes data between Digital Kanban™ and the enterprise

Large Automotive Manufacturer

A manufacturer of steering columns and rack and pinion gear

Customers: Automobile manufacturers including Toyota, Nissan, and GM

135 part numbers from 35 vendors, all now on Digital Kanban™

5000 scans per day

1 Buyer/Planner

Inventory cut in half

Before Digital Kanban: \$16M

After Digital Kanban: \$8M

Integrated Digital Kanban brings high-volume automotive production under control, cuts inventory in half, links data across locations

Imagine you're an experienced Production Control Manager, recently hired at a large automotive manufacturer where customer demand is on a fast ramp-up track. You are looking at having to turn out your highly-engineered products in much greater numbers. Revenue is projected to almost double over a 7-month period, from \$90M to \$170M, with the customer launching a new car brand every few months. You don't have a lot of vendors or parts (35 vendors, 130 parts) but you have very high volume. Under the best circumstances, "Production Control" is going to be a challenge.

You know going in that the company uses a manual kanban system and that there is a serious card management problem, even before the ramping up. The reality is even more alarming:

- The company has no shipping and receiving "department"—that function is not even in the loop. Instead, trucks arrive, boxes are unloaded, but there's no way to check anything in against what was ordered.
- The packing slip—or whatever paper is on the box when it arrives—gets sent to Accounting. If they have an open invoice to charge it against, they pay it. Does the quantity delivered match what was ordered and paid? Nobody can be sure! And although the Accounting department uses an ERP system, there's no tie-in to the manual kanban. The two departments aren't reading off the same page, and inevitably their information doesn't add up.
- Since there's no system for checking in orders, you realize that you may have parts you don't know you have—and vice versa.

The kanban system is purely manual—cards are placed on products when they come in, pulled as the items are used, and then put back in the receiving area to be recycled for the next shipments. Deciding what to order and sending a release is based on counting the pulled cards.

Inventory By Hand Count Means Constant Expediting and Outrageous Air Freight Bills

One business this state of affairs was good for was the air freight business, to the tune of over a million dollars a year! The manager explains:

"How did I find out what we had? There was no report I could run that would tell me, for example, that we had 22133 pieces of Part A—we had to actually go out and count the parts on the floor."

If they found out that what was ordered wasn't the right amount, then a new delivery had to be expedited, with all the headaches and expense involved in a last-minute rush. "Discovering we had to fly in a part we thought we had was an everyday occurrence," he continued. "And our people were bearing the stress, with the Production Control staff working 14 hour days to keep up with the constant churn."

The lack of reliable information also meant having to carry 30 days of inventory as safety stock, but even so, "JIT" too often meant "Just Isn't There."

ERP Without Integration: Accounting and Production Islands, Uncontrolled Data Discrepancies

Although the manufacturer had purchased and installed a complete ERP system several years before (Infor SyteLine ERP), the company's "pure kanban" philosophy meant they would stick with visual control for production and Production Control management, and use the new system only for accounting—with no way for the two to talk to each other.

Datacraft Solutions Chief Technology Officer Justin Diana points out the risk: "You have potentially large discrepancies between the ERP and kanban systems. For one of our integration clients, there was a \$2.5 million gap between the two systems before integration."

At the automotive manufacturer, the duplicate data entry required by disconnected systems was another costly inefficiency the Production Control Manager realized the company couldn't afford.



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Kanban at the Speed of Need

The Bottom Line: We Don't Know What We Need to Know—And Different Departments Don't Know the Same Thing

The manufacturer was facing a huge increase in production with two disconnected systems—the Accounting module of SyteLine and the error-prone, labor-intensive manual kanban on the shop floor and receiving dock—and without a receiving department. The new Production Control manager realized that his best hope was an electronic kanban system that would bring inventory calculations and the whole loop from release to receipt under control. He wanted a system that could integrate with SyteLine and eliminate the wasteful duplication and costly discrepancies of the siloed systems.

This strategy was consistent with the home office's kanban philosophy, but it would bring it into the 21st century, with reliable tracking and accountability at every step of the process. However, he wondered if the geographically-dispersed locations—the production plant in one place, Datacraft Solutions' Signum in another, and the Accounting department in a third—would pose a problem. Because Signum is Internet-based, he realized its off-site "location" was not a barrier (it's available 24/7 through a web browser), but he wasn't sure about the other two, in Virginia and North Carolina. Datacraft Solutions' Justin Diana reassured him: The integration makes location as transparent as it does the links in the supply chain.

Diana also answered another concern: The integration wasn't going to require a big IT project that would raise eyebrows in the home office. In fact, it could all be handled by Datacraft Solutions consultants simply and cost-effectively, with minimal time and effort for the ERP users or the company's IT department.

Signum/ERP Integration: Kanban for the 21st Century

With the help of Datacraft Solutions consultants, the manager and his team rapidly put together a customized solution that met the home office's needs for a visual paper trail, that ensured continuously accurate data on parts received, parts on hand, and parts needed, and that talked back and forth to SyteLine to link to invoicing and payment and eliminate double data entry. At the same time, the manager established a Receiving Department that would perform the check-in of incoming orders.

Phase 1: Setting up the Integrated System

In early 2005, the manufacturer entered all domestic component part numbers into Signum. Approximately 5000 kanban cards were set up. Simultaneously, Datacraft Solutions consultants integrated Signum with the SyteLine accounting module. All blanket purchase orders could now be entered into the SyteLine purchasing database, with both systems on the same page, using the same core data.

Phase 2: Day to Day Operations Hum Along, Remote Locations Work Transparently

"The new system brought things under control very fast, exactly as I'd hoped," the manager told us. "The whole program allows us to notify the vendor of what we need, and when we need it." Here's how it works, step-by-step:

Step 1. Every day, as parts are released from the stockroom, the kanban cards are scanned into Signum. Signum batches these scans by supplier and by part number. For example, if 120 cards are scanned for part number ABC, and the kanban card is for 20 pieces each, Signum would total 2,400 pieces that would need to be released from the vendor, with a single release number that is automatically generated in SyteLine in numerical order.

Step 2. Each day's material usage is calculated in Signum. In a manual step added as a double-check, the system requests release approval by the designated Production Control technician. This person verifies the count against what is usually shipped on a daily basis, and releases or modifies the order, knowing that some parts may not get scanned due to human error. A modification is called a "spike", and Signum includes the ability to issue spikes.

From this step until the last, receipt of the order and scanning the code into SyteLine, there is no human intervention at the manufacturing plant—everything is handled behind the scenes by the integrated system.

Step 3. Once the figures are approved in the Signum web interface, that information is sent by Signum to SyteLine in Accounting.

"How did I find out what we had? There was no report that could tell me... I had to actually go out and count the parts on the floor!"

Integration Gateway Ensures Accurate Synchronization

Signum ERP integration includes automatic monitoring of communication between the two systems. If a discrepancy arises, Signum sends an alert, providing an Integration Gateway (Figure 1) where the user can check the error and if needed resubmit the record for processing.

The Gateway can also be checked proactively several times a day to verify that values remain at zero (no errors) and resolve any gaps.

Figure 1. Integration Gateway Monitors Synchronization

Integration Points	# of Errored Records
View Consumption Info Errors	0
View Cancel Consumption Info Errors	0
View Issue Release Info Errors	0
View Changed Release Info Errors	0
View Receive Release Info Errors	0
View Canceled or Denied Release Info Errors	0

Digital Kanban™ Tips from the Production Control Manager

The Production Control manager in this case study realizes that an integrated Digital Kanban system may not be suited for all material used by every manufacturer.

“For us, it worked across the board, because we manufacture the same products everyday. But you don’t have to adopt it 100% to get big benefits.

“Everyone can use the Datacraft Solutions software for a portion of their materials, maybe for their standard items. Fasteners, for instance, are perfect for Digital Kanban. Also, the integration can work with any ERP system. In our case it was SyteLine, but Signum can be integrated with whatever system you have.”

Step 4. SyteLine issues a release order number, tagged to the blanket purchase order, passes it back to Signum, and the approved release order goes to the Datacraft Solutions web-based supplier interface, Curator, to be sent to the supplier. Curator can send either an email or fax alerting the vendor to the release. Depending on the vendor and the items, some releases are sent every day, some every 2 days, but all within 5 days.

Step 5. Once they receive the message, suppliers use the web interface to check the release and confirm the amount, delivery date of the shipment, and create an ASN (Advance Shipping Notice) when the shipment leaves the supplier.

Step 6. Curator even provides the supplier with a physical kanban card to place on each box in the shipment. Curator also has the ability to track each box, box-by-box, or the entire shipment. Unlike the former inscrutable packing slips, this card has a barcode for positive, trackable identification. So... in the last step of the loop...

Step 7. ... The receiving clerk (remember, there’s now an actual Receiving Department) pulls the card and scans the code into SyteLine’s database. SyteLine passes the information on to Signum, which now knows exactly what was shipped.

The Results: “We Know Where Everything Is Because We Know What We Use”

According to the manager, the system combines the best of both worlds, and does exactly what the company needed. “There’s a paper trail and a kanban card on each box, but because it’s generated by the vendor—thanks to Curator—it has accurate information, and it’s all in the system instead of on packing slips or scraps of paper.” Best of all, after the complete confusion of the original system, it’s fail safe: “If we built 1200 units on Monday but had 1300 kanban card scans, each for one part, we know there’s a mistake we need to address. It’s a great security check,” the manager commented.

Signum Expansion: 1500 Parts in the Maintenance Department

The company realized the efficiencies and control gained with Signum integration in manufacturing could also improve the Maintenance Department in its acquisition and control of machinery and equipment. This system is a completely new Signum adaptation, with these key elements:

- Scans are done from the maintenance inventory system into Signum.
- Repair parts can be designated to individual machines within individual cells.
- Unlike the high-volume, low part-number scenario in manufacturing, maintenance has 1,500 parts from many vendors. So far, new purchase orders have been created for all 1,500 parts.

Benefits

- The company no longer has to carry 30 days of safety stock. As the manager says, “Unless there is a catastrophe at a vendor’s plant, we never have to expedite orders.”
- Inventory turns 110 times per year - instead of the typical ERP rate of 6-12 times per year.
- Because of only ordering what they used (“consumption-based replenishment”), in 6 months, on-hand inventory was reduced from \$16M to \$8M.
- The company has not had to expedite a single part in 6 months. Previously, expediting cost the company over a million dollars a year.
- The Signum/SyteLine ERP integration eliminated having Production Control and Accounting working off two different sets of data. When an invoice was paid, it was based on a real release and actual, received materials. The fact that the departments were in different locations was no longer an obstacle to shared, synchronized data.
- The Production Control person who was working 14 hour days now works an 8 hour day, and spends his time on proactive planning instead of reactive fire alarms. In a week, he estimates he spends no more than 1-2 hours, total, dealing with every release of the 5000 cards being scanned by stockroom personnel. Amazingly, there is no need to hire more people to support the continuing rapid growth!
- The Production Control Manager is able to use his training and expertise where it belongs, to focus on strategic supplier issues instead of counting cards and authorizing expedited orders.

Datacraft Solutions' Innovative Integration Links ERP with Digital Kanban™, Makes Location Transparent

In this case study, the customized integration linked Signum Digital Kanban with the SyteLine ERP system, but Datacraft Solutions specializes in integrating *any* ERP system, such as PeopleSoft, SAP, Baan, Oracle, or SyteLine, with its web-based Signum. Datacraft Solutions Chief Technology Officer Justin Diana highlights these customer benefits:

Signum's integration architecture—

- Eliminates the need for duplicate data entry
- Leverages existing systems and technologies
- Complies with internal security and financial requirements

Signum integration brings together systems that—

- Are geographically separated
- Have different architectures and capabilities

Signum accomplishes all this—

- Reliably, flexibly, and cost-effectively
- With little or no impact on IT resources

Thanks to Datacraft Solutions' world-class expertise in ERP integration, broken links in your supply chain can be closed more rapidly and with less hassle than you would imagine.

“There's a paper trail and a kanban card on each box, but because it's generated by the vendor—thanks to Curator—it has accurate information, and it's all in the system instead of on packing slips or miscellaneous scraps of paper.”

About the Datacraft Solutions System

The Datacraft Solutions web-based Digital Kanban system consists of two integrated components, Signum and Curator.

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 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.

And with ERP integration, Signum links your Digital Kanban to any ERP implementation for a complete end-to-end solution.

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.

Both the manufacturer and supplier interfaces are intuitive and visual. With accessibility in mind, Datacraft Solutions 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 Solutions 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: The Datacraft Solutions 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 ERP integration with their software, and they are committed to customer success.



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