

GENERATING VIRTUAL KANBANS

California manufacturer experiences a big improvement over an old, manual method

BY JAMES E. MALCH

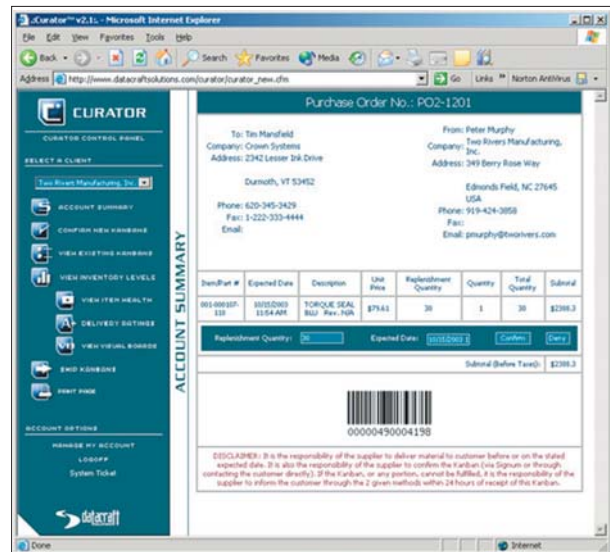
Pacific Scientific Electro Kinetics Division (PS/EKD) is located in Carpinteria, California. For more than 50 years, PS/EKD has manufactured alternators and generator power systems for the aerospace and defense industry. Over that time period the company has used many different manufacturing techniques to build permanent magnet alternators, AC/DC wire-wound generators, and power conditioning units that are reliable and cost effective for their customers. PS/EKD customers require the delivery of highly reliable products that meet their specifications and can handle the strenuous environment associated with the aerospace and defense industry.

To continue our run of success, and to keep up with modern manufacturing practices, in a high-mix, low-volume market, PS/EKD needed to implement a lean manufacturing process. This would help us reduce inventory and increase the velocity of product through the plant. At the heart of the lean process is the use of a kanban system. While we did have a fax release kanban system in place, the processing time and the steps involved with using a fax as a release signal were too cumbersome. We needed a system to automatically signal to our suppliers that we needed replenishment of materials for our permanent magnet alternators and our generator product lines. Our existing material requirements planning (MRP) system had no Internet functionality and no method of informing our suppliers of our need for material when our build schedule requirements changed. This is why we implemented a fax release system two years ago.

We knew that, to accomplish our goal of streamlining the kanban processing times, we needed a software solution that was easy to use and cost effective, and that supported kanban via the Internet. With the manual fax release program, we had difficulty knowing when the fax was sent, whether it was received, whether it was accepted, and so on. After carefully reviewing several software options and weighing the pros and cons of each, the decision was made to purchase Signum from Datacraft Solutions, located in Durham, North Carolina.

The Signum product allows us to automate the reordering of material within the product line work cells regardless of whether they are in continuous production or not. By taking our average daily production rate it has allowed us to establish optimal kanban sizes for use with our suppliers. The kanban process allows material to be pulled on to the production line when it is needed instead of having the suppliers deliver to a forecast or to our MRP-predicted use of materials. This is difficult in our business when our cus-

tomers' schedules are often changing or when there is an interruption in the production cycle.



The Signum software enables quick review of information about purchased items from any workstation that has access to the Internet.

Our focus with the kanban system is to increase the visibility of our material needs to our suppliers and to signal them that certain components are needed. Usage is tracked based on empty buckets sending a signal to replenish directly to our suppliers via e-mail.

Currently, we are using a two-bin system in our work cells. Each bin has a Signum card we created. The card contains the part number, part description, purchase order number, replenishment quantity, and cell location. When the first bucket is emptied it is turned upside down and the material coordinator pulls the card and takes it to his workstation to be scanned.

Once it is scanned, an e-mail is sent to the supplier and the buyer to notify them that a kanban has been sent. The supplier has the option of confirming, denying, or modifying the quantity or delivery. If no changes are made, the supplier confirms the kanban at its end via the Internet and a confirmation date appears which corresponds with the established replenishment lead time.

Upon receipt of the confirmation e-mail, the material coordinator places the card on a 31-day board located in receiving. If a signal is denied or modified, e-mail is sent automatically to both the buyer and the floor coordinator

advising of the change and that further action is required. When the parts are received, the card is pulled from the board and follows the part through receiving inspection where it is scanned upon acceptance. It then goes with the parts to their proper cell location. We have coded the material that is on the Signum system with the letter “S” so no one has to think if the part is on the Signum system or not.

SYSTEM OVERVIEW

The Signum product is not housed on our servers at PS/EKD. Instead, we access it through the Datacraft Web site and we use the software on a subscription basis. This saved us the cost of purchasing a server and of maintaining the hardware at our site. It also had little impact on our IT department resources, since there is no software to install, maintain, or troubleshoot. With the software hosted off site, we are able to get a quick implementation of modifications and implementations of new releases. The servers are upgraded in terms of hardware on a routine basis and the hosting site does performance tuning of the server. We haven’t had any performance issues with the software.

Naturally, with a server off site, one of our big concerns was security. Datacraft Solutions, however, has placed five physical layers of security on the server farm. The security levels include proximity cards and access codes and biometric scanners. Both we and our suppliers have secure passwords and log in as well.

Another concern with our environment is the up time for the software. We cannot afford to have the system crash. We found that the servers are simultaneously mirrored on backup systems to ensure redundancy at all times. Each server has an uninterruptible power supply, backed up by a diesel generator. We have not had any problems with reliability.

The foundation of the Signum application is written in Remedy’s Application Request System (ARS). This controls all of the collaborative communication between the manufacturers and suppliers, and all of the business rules that are enforced, and it allows PS/EKD to enable or disable certain functionality within the system. This enabled us to do some minor customizing of Signum for our lean production environment.

IMPLEMENTATION

As part of the Signum solution, we needed to install an interface software applet that communicates directly with the Signum server on each PC that would be accessing the program. The software applet installation was simple and was done in less than a day for all of our users on the Signum system.

In addition to adding the applet to our computers at PS/EKD, we also needed to transfer some basic data to the Signum servers. On a daily basis, there is very little data that gets transferred over the internet. When a kanban card’s bar code is scanned by one of our employees, a “key” is transmitted to our servers, which in turn builds the communication response to the suppliers based on the signal.

We loaded all of our inventory information into the Signum interface to be uploaded to the Signum servers so that the data transfer between PS/EKD and our suppliers would be quick, regardless of Internet traffic. We also loaded the various suppliers’ information such as name, notification contacts, e-mail addresses, and so forth. Once the information was entered, we were able to link the supplier with a part number. We then calculated our optimum kanban levels based on our daily production build schedule, determined the communication route of kanban signals, and determined who is notified if a signal is not confirmed or is modified by the supplier so we can follow up on the possible cause of the problem.

In addition, we entered information to identify cells, locations, and the kanban coordinator who will oversee the components that are entered. This process, due to some internal delays and data integrity issues, has taken a little less than a month.

TRAINING/TECHNICAL SUPPORT

In the beginning, we felt it necessary to do on-site training with our suppliers. After the second supplier, we realized that it was so simple and easy we could do the training over the phone. We have two suppliers located in New Jersey that we trained in this manner.

The Signum system is easy to use for anyone familiar with the basic functionality of Web browsers and Web applications. We found the software to be user friendly and that it did not require intensive training to gain proficiency. There are user manuals available both online and in hard copy form and a 24-hour-a-day hotline for support. When we have used the support personnel, we have found them friendly, knowledgeable, and informed. If there was a complex question in which the support person didn’t have an immediate answer, a response was returned within 24 hours.

Due to the ease of use of the software, the training classes we held, and the excellent customer support, we found that all of our employees using Signum were able to get up

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and running with little difficulties and minimal training.

BEST FEATURE

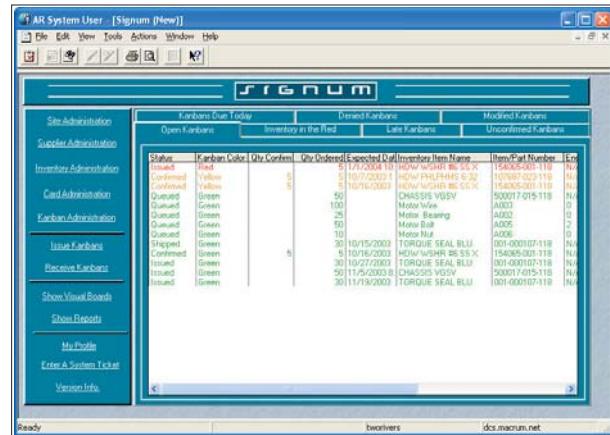
One of the best features of the software is its ease-of-use something that is required by both our internal personnel and our suppliers. As mentioned earlier, we have found that because the software is so easy to use, we can conduct training over the phone. We were able to load data into the system and start using it almost immediately. There are several management reports that show supplier performance and anticipated inventory turns for a specific part. This is a major benefit over our manual fax release program where we had no easy means of measuring supplier compliance.

The software is designed to be very visual. Items are color coded for quick recognition. In our application of a two-bin system, if neither bin has been scanned it will show up in green, and when the first bin is scanned that part will show up in yellow. If the second bin is scanned before the first bin is received it will show up in red. Drill downs are easy to use and are available for critical areas.

When a user goes to the visual board area it will show the number of items with green, yellow, or red status. Based on daily usage and the last receipt, the system will calculate when an item shortage will occur. There is also additional information such as supplier name, phone contact, replenishment size, and any outstanding kanban information.

SHORTCOMINGS

Our largest issue to date with the entire Signum implementation has been the data transfer issue. We ran into the prob-



The Signum product provides color-coded information to help manage the kanban process within Pacific Scientific Electro Kinetics.

lem of trying to move the data over too quickly without considering some of the uses and ramifications of the current state of the data. We should have spent more time working on the data transfer plan and deciding what data to move and what data to scrub prior to moving it to the Signum software. We have noticed that when we encounter errors within the software, they are more in how data was entered rather than a flaw in the software.

Good data management is the key to an implementation of this nature. What we tried to do was transfer everything at once. But we have found out that, as we add more items, it is only necessary to add what we need, not the whole bill of material. This is what makes Datacraft a more flexible system than others we evaluated.

Vendor Comments

Datacraft Solutions, Inc. specializes in supply chain collaborative communication. Built on an industry-proven platform with more than 7,000 clients and 10 years of market availability within Fortune 100 and 500 companies, our solution, Signum, is unique in its class. Appealing specifically to the lean manufacturing market, Signum uses state-of-the-art technology and the power of the Internet to provide the first fully-automated kanban replenishment system. Signum is bar code driven, fully visual, globally accessible and customizable to fit the specific needs of any company.

Datacraft's innovative solutions are available through a model that makes sense. There is no extensive IT or bulky

software installations, and the implementation process can be measured in days, rather than weeks, months, or even years. A risk-free scalable monthly subscription makes the cost of ownership easy to calculate and predict. Licensing based on kanban administrators and suppliers of any size and at any stage in their kanban journey. With a starting price as low as \$410 a month, companies gain the benefits of a solution that would otherwise make kanban automation cost prohibitive and counterproductive.

Because Datacraft uses the best security and most advanced technology available, the potential does not stop at kanban. Datacraft provides a central

gateway of communication throughout the supply chain. The power of wireless, voice and data transfer, handheld devices, and other cutting-edge advancements, enable tangible reductions in time, cost, and inventory holding. Centralized data storage, combined with a redundant infrastructure that can handle millions of simultaneous transactions, provide real-time visibility and accessibility to indispensable, process-driving information from anywhere in the world. Datacraft focuses on removing waste through automation to enable clients to focus on what they do best: running their businesses and providing the highest level of quality to their customers.

OVERALL EVALUATION

We have been pleased with the Signum software, the support staff, and everyone involved at Datacraft. We did encounter the usual problems when moving from one system to another, but we were able to overcome those issues with little or no impact on our business. We are now anxiously awaiting implementation of Signum across all our product lines.

We feel there are many advantages over our old manual method, and these advantages are already starting to lead to a positive return on investment for this project. The Signum software enables us to work smarter rather than harder. We have seen an increase of almost three turns in our inventory since we first started in June. Since we no longer are staging material waiting to be delivered to the floor, we have also seen a significant reduction in our stockroom. ♦

James E. Malch is director of operations at Pacific Scientific EKD and director of materials at Pacific Scientific HTL. He has more than 27 years experience in manufacturing and materials-related fields. He may be contacted via e-mail at jmalch@ekd.pacsci.com.

Product Summary

PRODUCT NAME: Signum

TYPE OF PROGRAM: Kanban automation—supply chain management

SOFTWARE VENDOR:

Datacraft Solutions, Inc.

604 West Morgan Street

Phone: (919) 667-9804

Fax: (919) 682-5986

Web site: www.datacraftsolutions.com

Recommended Operating Environment (PC)

Windows 2000/XP

Internet Explorer Browser

**Recommended Operating Environment
(server environment)**

Not needed, as the application is hosted externally in an application server environment by the vendor.