



SYNCKANBAN SOFTWARE CASE STUDY



Award-Winning Transformation

Manufacturers looking to gain control over their inventory through Lean principles are turning toward eKanban (electronic Kanban) software solutions that can effectively plug into their current systems and environment. Manufacturing eKanban software is a signaling system that drives the movement of materials within a manufacturing, assembly or warehousing facility. It monitors consumption and replenishment across every facet of the manufacturing cycle, gaining valuable information to automatically right-size inventory levels, heal performance problems and reduce waste. For many, this method delivers quick, significant inventory savings while providing a distinct competitive advantage.

Orbital ATK Proves Merits of eKanban

Orbital ATK, a global leader in aerospace and defense technologies, implemented a new Lean project at its Clearfield, Utah location with the primary goal of reducing the amount of inventory in the factory.

In working toward accomplishing this goal, the \$4.4B aerospace and defense manufacturer decided to pilot the use of an eKanban system in their Aerospace Structures Division (ASD). ASD is a global market leader in the manufacture of mission-critical composite structures for the aerospace and defense industries.



Using advanced composite manufacturing technologies, ASD produces lightweight and reliable structures for commercial and military aircraft programs such as the Airbus A350XWB and the F-35 Lightning II as well as for the Atlas V and Delta IV launch vehicles. The Division also produces a wide range of aerospace composite antennas, radomes and structures, and provides RF testing and verification services.

ASD uses advanced composite manufacturing technologies to produce lightweight and reliable structures for commercial and military aircraft programs that include the F-35 Lightning II (pictured), the Airbus A350XWB and the Atlas V and Delta IV launch vehicles.



The purpose of the eKanban pilot program was to evaluate how this just-in-time (JIT) replenishment method would not only support their inventory reduction initiative, but help to simplify their materials replenishment process and provide real-time visibility into the status of replenishment and material expirations.

The technology was reviewed by a cross functional ASD team which included engineering, information systems, operations and industrial engineering. Production control, supply chain and conveyance were also part of the analysis and selection process.

In the end, the final selection and pilot implementation of SyncKanban software by Synchrono took just three months.

Addressing challenges and defining objectives

To support ASD in achieving their inventory reduction goals, there were several mitigating factors that needed to be addressed as part of the implementation of SyncKanban software, including:

- **System/process consolidation.** ASD was managing 16 different systems for building and distributing parts. SyncKanban would become the single replenishment system of record, replacing all previous systems.
- **Material expirations and scrap.** Many of the specialized materials used by ASD have a fixed date and temperature-controlled lifespan. Several factors, including the absence of a strict first-in, first-out (FIFO) methodology, was resulting in excessive amounts of scrap per month.
- **Stock-outs.** ASD would experience hours of downtime on the assembly line waiting for materials.

As mentioned, before ASD implemented SyncKanban software, they were managing 16 different material ordering methods which caused several degrees of chaos and continuous crisis management. Lacking visibility across these ordering methods, a “critical shortage list” would be created daily to signal potential material distribution issues. Expeditors, however, got their exercise, running from one end of ASD’s 650,000 square foot facility to the other, in attempt to align material deliveries with production.

The objectives ASD outlined for the pilot were date-specific. In three months’ time, they wanted the number of systems to build and distribute materials to be consolidated from 16 down to just 1. The second objective was to effectively eliminate out-life scrap the week following their go-live date. Both objectives were met on time with SyncKanban software.

Parts/assemblies are scanned as they are received into inventory and again, when consumed – automatically sending demand signals for replenishment.

SyncKanban monitors activity and analyzes data to continually right-size inventory.



Simplicity through automation

“Synchrono assisted us with the initial setup and turned the keys over – it was quick and super simple. Based on how easy the system is to use and the results it has produced, we have experienced a very high user adoption rate. Other divisions within the company have taken notice.”

- Chris Anderson, Manager, IS Applications at Orbital ATK Aerospace Structures Division

SyncKanban, pull-based inventory replenishment and supply chain collaboration software scans in parts/assemblies as they are received into inventory and again, when consumed - automatically sending demand signals for replenishment. While seemingly simplistic, the magic happens in the data and analysis the system performs behind the scenes to right-size inventory. SyncKanban monitors consumption and replenishment at every step of the manufacturing cycle, responding instantly to changes in demand to keep inventory at its lowest levels, while maintaining the right amount of materials on hand. Further, SyncKanban will automatically adjust and re-size kanbans as needed and/or provide suggestions to increase or decrease stock buffers anytime they are under- or over-protecting. All this while managing lead times and tracking supplier performance. At ASD today, materials are delivered as needed, where needed, through milk runs every four hours.

Quantifying value

Progress toward the overall inventory reduction goal of ASD’s project was measured using two key metrics - inventory turns and inventory cost; specifically, the cost of waste associated with material scrap. Due to the nature of their business unit, ASD uses highly advanced and proprietary composite manufacturing technologies, requiring exact precision. Many of the carbon fiber

Inventory Turns and Inventory Cost were the two key metrics ASD used to measure progress towards their overall inventory reduction goal.



materials used in building the composite structures have both a fixed date and temperature-controlled lifespan. These materials are stored in a freezer

“It is now rare to hear Operations state that they missed rates or could not build something due to lack of materials, where prior to implementing SyncKanban, that was a daily discussion. SyncKanban delivered!”

– Paul Hardy, Solutions Architect, Orbital ATK

warehouse and if not used within a specific amount of time, need to be scrapped. Because materials may also expire while in the freezer, ASD wanted to institute a FIFO process by signaling drivers to pick up specific material lots based on expiration date.

Given the material lifespan issues, there was an urgent need by ASD’s Root Cause and Corrective Action (RCCA) team to address scrap due to out-life material as part of the initial software setup. The RCCA team saw a tremendous Lean opportunity to measure, quantify scrap material and eliminate waste with SyncKanban software. Their instincts were correct, and the results, dramatic.

	BEFORE SYNCKANBAN	AFTER SYNCKANBAN
MATERIAL REPLENISHMENT SYSTEMS	16	1
CRITICAL SHORTAGE LIST	DAILY.	ELIMINATED.
WIP INVENTORY REDUCTION		30%
SCRAP REDUCED		90%

Results: Proven pilot

ASD’s results were dramatic, reducing scrap by 90% and saving millions of dollars over a multi-year period. Additional improvements achieved through SyncKanban software include increased inventory turns, reduced unplanned and/or expedited deliveries and minimal on-site material requirements. And the added visibility gained through real-time material tracking – and data gathered

ASD SyncKanban Project Receives Supply & Demand Chain Executive 100 Award

Supply & Demand Chain Executive, the executive's user manual for successful supply and demand chain transformation, selected Orbital ATK Aerospace Structures Division and Synchrono as recipients of an SDCE 100 Award for 2017, based on the supply chain transformation value gained through SyncKanban software.



The SDCE 100 is an annual list of 100 great supply chain projects. These projects can serve as a map for supply chain executives who are looking for new opportunities to drive improvement in their own operations. These projects show how supply chain solution and service providers help their customers and clients achieve supply chain excellence and prepare their supply chains for success.

through the system - drove additional continuous improvement efforts by the RCCA team.

Since the implementation of SyncKanban within ASD, the results the Division has achieved have been showcased across the organization and presented to senior management. Within 2 months of the initial go-live in ASD, another pilot was implemented in the Center of Excellence supporting the painting and assembly of the F-35 Joint Strike Fighter – and the company has further plans to expand the use of SyncKanban across their manufacturing facilities.

ASD has more plans for SyncKanban, too. They want to eliminate their offsite freezer warehouse by using SyncKanban to initiate replenishment directly from suppliers to the shop floor. In doing so, they would utilize the SyncKanban Supplier Communication Portal that provides real-time visibility of order status and delivery dates for both ASD and their suppliers – and a means for more effective communication and collaboration. External suppliers would receive automated replenishment signals, that would be fulfilled against a blanket purchase order, providing a more streamlined process and greatly reducing the amount of administrative paperwork.

The Lean replenishment signal

eKanban automated inventory replenishment signals increase efficiency and eliminate accidental data entry errors and lost cards often experienced with manual Kanban processes. Supply and materials managers are freed from administrative tasks associated with the replenishment loop, creating more time to focus on value-added responsibilities, such as supply contract management and strategic sourcing.

By maintaining right-size inventories, SyncKanban software bests manual manufacturing Kanban systems because it responds instantly to changes in demand, maintaining truly minimal inventories, often a 50% reduction from pre-implementation levels. The result is a dramatically improved cash flow and increased capacity.

Additional Resources on eKanban and SyncKanban Software

Kanban Series White Paper (1 of 5): [Gaining Control: Exploring Push v. Pull Manufacturing](#)

Demand-Driven Matters Blog Post: [Lean Manufacturing Driven by Rapid Return on eKanban Technology Investment](#)

Video: [SyncKanban Manufacturing eKanban Software](#)

As with Orbital ATK, all manufacturers recognize that demand is dynamic, and the ability to address under- and over-supply situations due to demand changes — without straining suppliers is a critical step to moving out of continuous crisis management.

Monitoring and managing up-to-the-minute and available material flow allows manufacturers to gain greater control, as well as the confidence that inventory is always right-sized. This is why manufacturers embarking on Lean initiatives often start with SyncKanban. The software plugs into a manufacturer's existing environment for relatively easy implementation and delivers quick, sustainable results to keep the Lean momentum moving forward. More information on SyncKanban is available at synchrono.com.



About Synchrono

Synchrono® LLC enables the demand-driven visual factory of the future, synchronizing people, processes, machines, materials and data to drive production flow from order inception to delivery. The award winning Synchrono Demand-Driven Manufacturing Platform includes a synchronized production planning, scheduling and execution system; ekanban inventory replenishment and supply chain collaboration software; a data collection, historian and automated workflow engine; alert management and monitoring software; and a real-time visual factory information system. The Platform components may be implemented independently to provide outstanding results. And when installed collectively, these systems connect the entire manufacturing operation and extended supply chain in real-time, generating the Internet of Things intelligence for instant decision-making and providing an unprecedented foundation for communication, collaboration and continuous improvement.

Synchrono helps clients manage constraints, improve flow and drive on-time delivery to maintain a competitive edge. Look to Synchrono for software that meets your demand. Sync with us at www.synchrono.com and follow the Demand-Driven Matters blog at www.synchrono.com/blog.