

# Building Profitability

Mitsubishi Caterpillar Forklift America Inc. Improves Manufacturing Efficiency and Saves Millions



**D**elivering the best equipment to the material handling industry is a goal that Mitsubishi Caterpillar Forklift America Inc. (MCFA) takes seriously. This commitment to excellence has defined MCFA since 1992, when Mitsubishi Heavy Industries, Ltd., combined its manufacturing and engineering expertise with Caterpillar Industrial Inc.'s reputable product support, strong dealer network and a world-renowned brand identity to form MCFA.

MCFA began its supply chain journey with JDA Software more than 10 years ago when the manufacturer sought a supply chain management solution that would improve the efficiency of its manufacturing operations, while enabling the company to sustain its customer base and increase market share.

"At the time, we were operating an inefficient push-based manufacturing model. We would make our trucks to stock, find customers and then match those customers to the trucks we had already made," said Saravana Sigamani, senior manager, assembly operations and capacity planning at MCFA. "With excess work-in-process [WIP] inventory and long lead times from order to delivery, we knew there was a lot of room for improvement. After a detailed selection process, we partnered with JDA to optimize our supply chain and operations planning process."



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*– Jay Gusler,  
Vice President of Operations,  
MCFA*

MCFA implemented JDA Factory Planner, a concurrent constraint-based optimization solution for planning and exception-based reporting. The solution provides a holistic view of factory plans and comprehensive demand, supply and capacity key performance indicators.

“We decided to take a phased approach with the implementation. First, we focused on streamlining the material planning process for key components,” said Sigamani. “The cost savings derived from the factory planning implementation was substantial. We reduced our WIP inventory by 70 percent and components inventory by 20 percent, along with decreasing our assembly lead time by 50 percent.”

### Laying the Groundwork for Lean Management

While MCFA was moving toward a pull-based manufacturing model, the manufacturer realized it had an inconsistent internal supply chain and an inefficient material replenishment process. MCFA set out to improve its business processes to ensure that it was getting the most value out of its factory planning solution.

“While we were making strides in supply chain optimization, one of the major business challenges we discovered was that our replenishment systems were not consistent,” said Sigamani. “That led us to launch the Velocity Program — a cross-functional, lean deployment program developed by MCFA — to further improve our manufacturing efficiencies.”

The Velocity Program was founded on the vision that MCFA’s material replenishment processes would provide customers with industry-leading product availability and on-time delivery. The Velocity Program allows MCFA to mandate how it wants to receive parts rather than having a supplier ship parts to MCFA in bulk. Instead of spending time repackaging parts to be inventoried and used in assembly, materials are immediately stored and then pulled on a just-in-time basis.

“As a result of the Velocity Program, we have integrated formalized replenishment processes all the way from suppliers to the warehouse to the assembly lines,” said Sigamani. “Through streamlining this process, we have reduced the number of replenishment triggers from 23 to three.”

MCFA also implemented the Plan for Every Part (PFEP) process, which links parts from suppliers to finished goods. “With PFEP, we have a plan for every part, essentially outlining how each part is purchased, packaged and moved from suppliers to the warehouse, and then from the warehouse to the assembly lines. It has helped reduce our inventory and made it easier to deliver on our customer commitments,” said Sigamani.

The streamlined replenishment processes have yielded substantial results for MCFA. “From an on-time delivery perspective, we have seen a 40 percent improvement in performance. Our customer-committed ship date has increased from 60 to 95 percent with this program,” said Sigamani. “Plus, we right-sized our inventory to two days, resulting in savings of \$5.8 million.”

As the Velocity Program delivered internal gains, the company set its sights on solving its infinite capacity planning challenges. “We were still experiencing uneven factory loading and a lot of exceptions that required manual intervention,” noted Sigamani.

The company worked with JDA to form a model that includes level-scheduling and scheduling step-loading, which has helped MCFA improve its on-time starts dramatically. The company now operates material and finite capacity planning with critical components, which has led to improved plan reliability and schedule attainment.

## Establishing a Blueprint for Continual Improvement

Driven by continual improvement, MCFA is looking ahead to the next step in its supply chain journey. "As a company with global presence, we are exploring opportunities to integrate our business across the entire value chain — from order promising all the way to execution, ensuring customer satisfaction and profitability. Having a risk mitigation strategy, supplier collaboration and agility will be the key to world-class supply chain management," said Jay Gusler, vice president of operations at MCFA.

"When there's a lack of synchronization between demand and supply, there will always be a ripple effect of the bullwhip effect. We're currently doing an assessment with JDA for sales and operations planning to see how well we're doing. We're also identifying the gaps we can fill over the next three to four years that will get us to a place where we can collaborate with our suppliers and dealers and synchronize our business planning processes across the entire value chain," said Sigamani.

"One of the key things we learned throughout this process is that you shouldn't force your system into your existing process. Most advanced planning systems are designed for the ideal production environment, and this valuable insight enabled us to unearth business process improvement opportunities across the organization," said Sigamani. "JDA sets the industry standard in innovative, advanced planning solutions. We have been very impressed with the company's highly skilled resources, from both a business and a system standpoint. JDA has a customer relationship management program that's been driving the partnership between our two organizations to the next level, where we are continuously working toward exploring new improvement opportunities in our supply chain." ■

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## MCFA at a Glance

Mitsubishi Caterpillar Forklift America Inc. (MCFA) is a leading manufacturer of material handling equipment for the United States, Mexico, Canada and Latin America. Based in Houston, Texas, MCFA distributes three distinct brands of forklifts and narrow aisle warehouse products — Mitsubishi forklift trucks, Cat lift trucks and Jungheinrich. Featuring an extensive dealer network in North, Central and South America, the company provides customers with quality products ranging from internal combustion forklifts to electric warehouse products.

## Objective

Optimize the company's supply chain planning process in order to increase manufacturing efficiency, customer service levels and market share.

## Solution

- JDA® Factory Planner

## Services

- JDA Implementation Services

## Real Results

- Saved \$5.8 million through inventory reduction
- Reduced WIP inventory by 70 percent and components inventory by 20 percent
- Increased customer-committed ship date from 60 percent to 95 percent
- Improved on-time delivery performance by 40 percent

