

## Transforming Inventory into a Strategic Weapon



More than a matter of statistical models, strategic inventory management requires a deep understanding of how the end-to-end supply chain is actually managed. From intelligently micro-segmenting their products to creating continuous inventory process improvements, few businesses have the capabilities and vision to transform their inventory into a competitive advantage. Today — backed by technology and expertise from JDA — a number of forward-looking leaders are changing the very definition of inventory optimization. What lessons can your business learn?

In recent years, the topic of inventory optimization has taken center stage in the supply chain industry, but often for the wrong reasons. A great deal of attention has been focused on identifying the best algorithms or statistical models to solve the inventory problem and deliver quick returns in the form of freed-up working capital and other short-term improvements.

Inventory optimization, however, is not a short-term problem that requires a one-time fix. It is a process-based discipline that helps companies continuously manage their increasingly complex, end-to-end global supply chains in the face of constantly changing market conditions, business objectives, risks and constraints. By focusing narrowly on a quick fix in the form of statistical inventory modeling, many businesses have shortchanged their long-term results by failing to see the even more profound potential of inventory optimization as a competitive advantage. For example, executives may pride themselves on a single inventory metric — such as just-in-time delivery performance — but may not understand the impact this has on the rest of the global supply chain, in the form of increased handling costs or transportation expenses.

While many in our industry have focused on inventory optimization as a stand-alone success strategy, the truth is that inventory is just one component of the new global supply chain, which is characterized by enormous demand variability, ever-shorter product life cycles and constantly shifting logistics cost scenarios. Just as every company has its own unique long-term corporate strategy for navigating today's complex business environment, every enterprise must also have a unique inventory management strategy that supports that top-level vision.

Instead of focusing on short-term results, a number of leading companies have been working to create and leverage a long-term, sustainable competitive edge by aligning their day-to-day inventory plans with their top-level goals on an ongoing basis — and turning this component of their supply chains into a powerful strategic advantage in a challenging economic climate.

### Where to Begin? Defining the Right “Supply Chain Posture” for Your Business

While inventory management is just one component of the global supply chain, it has a profound impact on overall business performance. How a company positions inventory across the supply chain defines an overall “supply chain posture” that determines its ability to profitably and effectively meet demand in a dynamic marketplace.

What do we mean by supply chain posture? Just as sprinters in a 100-meter race position themselves with extreme precision in anticipation of the starting gun's shot — poised to get the fastest, strongest push off of the blocks — businesses need to determine the best overall position, or posture, that will enable them to meet their long-term goals. As the environment around them changes, they must be agile enough to sense these business shifts and adjust their posture accordingly. Inventory policies and processes, working together across the global supply chain, define the overall supply chain posture — and also determine how the business will respond to changes in market and supply conditions.

It would be easier if there were a single posture that could be applied to all companies, at all times. Every business, however, delivers unique products to unique market segments. Within these segments are individual customers with different needs in terms of service levels, lead times, demand sensitivity, ability to absorb demand spikes, tolerance for excess stock and other characteristics — each of which impacts the inventory policies used to serve them. The overall supply chain posture must be flexible enough to meet these individual customer needs. It must also be very specific, defining what inventories to carry, where, in what form, and how much, taking into consideration the entire global procurement, manufacturing and distribution network.

It is critical that the supply chain posture supports the long-term health and profitability of the business, reflecting top-level strategic goals. Whatever the unique selling proposition of the company, the supply chain posture — and associated inventory policies — must reflect it.

Defining a strategic supply chain posture means answering five key questions:

### **1. Are we segmenting products in a way that distinguishes their unique inventory management characteristics?**

Most businesses today have recognized the 80/20 rule and are making some attempt to distinguish the inventory needs of their significant few products versus the trivial many. In today's increasingly diverse global markets, product segmentation must be even more sophisticated, taking place at a new micro level that dissects the entire portfolio by each product's significant characteristics across multiple dimensions (see sidebar, "Next-Generation Segmentation: The Advent of 'Designer' Inventory Strategies," to the right). In a diverse marketplace, segmentation cannot be merely an act of simplifying or modeling assumptions. It should instead focus on developing an increasingly greater understanding of how to serve individual customers and market segments in a way that is consistent with both top-level business goals and worldwide supply chain constraints.

### **2. Have we right-sized our inventory in a way that minimizes risk?**

Following the economic downturn of the last several years, no one is debating the importance of risk minimization. For every product segment and customer channel, companies need to determine the right supply chain posture to deliver consistently high service levels while also minimizing their financial exposure. In working to balance service and cost levels, it is critical to remember two important facts: (a) there is no single math algorithm that works for every business, segment and channel; and (b) calculations must always consider the total landed cost of inventory — including transportation expenses, handling charges and holding costs — which can change dramatically and swiftly in today's volatile environment. Businesses must also consider more subtle costs such as channel liabilities.

### **3. Do we truly understand customer buying behaviors — and apply this insight to our inventory strategy?**

Inventory strategists should always bear in mind this simple fact: Everything begins with the customer. Today, supply chain leaders are working hard to understand and interpret actual buying behaviors, using enterprise resource planning (ERP) historical transaction data and point-of-sale (POS) data to generate individual customer profiles. Based on this real-world insight, the supply chain posture can be aligned with unique customer expectations.

#### **Next-Generation Segmentation: The Advent of "Designer" Inventory Strategies**

With both products and markets growing in diversity, the simple 80/20 rule is not enough to acknowledge the real differences among inventory types — because there is a wealth of subtle distinctions that can't be recognized by such macro numbers. Leading companies are now slicing and dicing their product portfolios along multiple dimensions, into new micro-segments that demonstrate the value and impact of each product for the global supply chain. Based on their consumption patterns, criticality, velocity and other key attributes, products are governed by a set of highly customized designer inventory strategies that are tailored to each micro-segment. The payoffs can be enormous: JDA helped Southwest Airlines achieve an \$8.8 million payback in the first year — and significant improvements in on-time performance — by micro-segmenting repair parts based on their cost, complexity and criticality. According to Southwest, the long-term return is expected to exceed \$31 million.

#### **A Case in Point: The Value of Optimizing Postponement**

With sales of more than 25 billion devices annually — and a process-intensive supply chain — ON Semiconductor is especially vulnerable to shifts in market demand. The company was challenged by ongoing uncertainty about how much inventory to hold at various places in its supply chain. JDA worked with ON Semiconductor to study customer buying behaviors and create customer profiles based on ordering behaviors and delivery needs. Using lead-time trend information from individual customers, the company can now determine how much inventory should be held for each of its three major processes: wafer fabrication, die bank, and finished goods. ON Semiconductor estimates that it will achieve an overall inventory reduction of 10 percent and a 300 percent return on its inventory optimization investment — while also improving customer service levels.

#### 4. Are we postponing inventory decisions in a strategic manner?

Based on these specific customer insights, businesses can postpone their inventory decisions to place the right amount of inventory at the right level in the supply chain to meet each customer's expectations for service levels and timely delivery—while also minimizing overall inventory costs and financial exposure (see sidebar, “A Case in Point: The Value of Optimizing Postponement,” page 2). Given today's volatile economic climate, postponement remains an extremely important strategy to minimize risk across the supply chain.

#### 5. Are we applying the right replenishment strategy?

There is proven value in lean and just-in-time replenishment strategies but these initiatives cannot be pursued in isolation, especially in an era of rapidly fluctuating transportation costs. The businesses that are succeeding in this volatile economic climate are balancing low inventory goals and fast delivery targets with a range of alternative replenishment strategies that consider total landed costs — including en-route transportation charges, as well as warehouse handling expenses — and create the best overall results for the supply chain as a whole.

Answering these five critical questions will help organizations adopt the right inventory policies and processes that address customer needs and supply constraints, while minimizing risk. Taken together, these inventory practices comprise an overall supply chain posture that positions the business for long-term success.

### Moving Forward: Managing Inventory is Not a One-Time Event

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Because the business environment is continuously changing, adopting the right supply chain posture cannot be a one-time event. Instead, it must be an ongoing process that reflects and responds to changes in the business environment. The answers to the five questions discussed previously are a moving target. For example, today's micro-segmentation strategy may not make sense tomorrow.

For this reason, inventory optimization leaders are those companies that have created an ongoing capability to monitor conditions across the supply chain — from rising transportation costs to dramatic shifts in demand — and adjust inventory levels accordingly.

This is the area of performance that separates the leaders from the followers. Best-in-class inventory strategists continuously monitor and re-align their supply chain posture so that it reflects current business conditions. How many business failures could have been averted in the last two years if companies had responded more proactively to changing conditions?

Leading organizations are implementing a number of end-to-end process changes — including the use of interactive process playbooks and weekly plan-do-check-act cycles — to keep the inventory strategy on track.

In the case of missed sales targets in one specific region or store, inventory strategies based solely on math algorithms might sense a forecast error and recommend short-term fixes such as shifting products within the supply chain — what JDA calls “throwing inventory at the problem.” Obviously this is an expensive proposition, especially in today's environment of rising logistics costs.

Instead, best-in-class businesses have instituted a continuous process in which issues like regional sales declines due to poor stock management are not only addressed in the short term, but also eliminated in the longer term through an exhaustive root-cause analysis.

Drilling down through the supply chain, inventory strategists work to understand the reason for a local drop in sales by asking such questions as: What are the unique buying patterns in this region? How do prices and margins compare with other stores or geographic areas? Would a different SKU sell better? Can we shape demand through promotions?

With the advent of sophisticated modeling and analytics tools, inventory managers are also better equipped than ever to anticipate demand changes before they occur, and adjust inventory accordingly. By gathering data and insight from across the global, end-to-end supply chain, leading businesses can quickly sense and respond to changes in consumer behavior that are likely to have a significant impact on inventory levels.

For example, the swift and unprecedented drop in demand for high-tech consumer products in 2008 caught many suppliers unprepared. Saddled with high inventory levels and associated carrying costs that significantly eroded their gross margins, these businesses, as a result, will face long-term financial challenges. Not only did they lose money in the short term, but they will also have a hard time supporting the product innovations, consumer promotions and other initiatives that support future success.



## Creating Ongoing Results: The JDA Advantage

For many businesses undertaking the challenge of inventory management, the journey ends at generating optimum inventory targets — and checking performance against these targets once or twice a year.

Recognizing that business conditions change much more often, JDA partners with its worldwide customers to create an ongoing capability to continuously monitor performance and adjust targets as changes occur. In fact, leading companies are using JDA solutions to benchmark their service-level performance on a weekly basis — gathering valuable information that can improve their future decisions, while also making continuous adjustments that maximize their agility. This new paradigm is rapidly becoming a cost of doing business in the current world economy.

JDA's industry-leading analytics and workflows not only illuminate actual performance against targets, but also expose the root causes of inventory challenges including shifts in customer buying behaviors, forecasting errors and changes in the total landed costs of various products.

### A Case in Point: The Value of Inventory Optimization Managed Services

Following the economic downturn in 2008 and 2009, Fairchild Semiconductor faced some tough business challenges with extremely volatile demand, a global shortage of manufacturing capacity, growing lead times and scarce supply.

To offset the increase in demand, Fairchild Semiconductor is increasing manufacturing capacity and capabilities with minimal capital investment. Taking a speed-to-value approach, Fairchild Semiconductor opted to have JDA host the JDA® Inventory Optimization and JDA® Scenario Analyzer solutions, ensuring that it achieved a quick return on its technology investment.

Not only was the implementation 50 percent faster than a more traditional implementation, but it was done at a much lower cost. As a result, Fairchild Semiconductor's inventory is leaner than ever. With an integrated business planning process supported by industry-leading supply chain technology, Fairchild Semiconductor can identify and respond to changing market conditions faster and more efficiently. Using data from the JDA solutions, Fairchild Semiconductor runs statistical models that allow it to view trends and detect changes in demand four to six weeks sooner than if relying solely on traditional forecasting methods.

Although Fairchild Semiconductor's supply chain is more constrained now than ever, the company has gained ground in building up inventory for its fastest-moving products while draining inventory of the slower-moving products.

Fairchild has also moved from a 100 percent manual inventory review to a prioritized, exception-based process — reducing end-to-end targets planning, review and approval times by 40 percent.

Additionally, JDA Inventory Optimization supports Fairchild Semiconductor's monthly planning cycle by aligning day-to-day inventory plans with top-level goals. Based on consumption patterns, criticality, velocity and other key attributes, the solution enables Fairchild Semiconductor to govern products by a set of highly customized inventory strategies.

The long-term benefits include lower inventory costs, higher service levels, flexible postponement strategies and inventory policies that dynamically adapt to business conditions.

Throughout the economic downturn, Fairchild Semiconductor has achieved better-than-expected inventory performance and was able to minimize the impact on the manufacturing loading level. As such, the company experienced a very controlled slowdown and a relatively controlled speed up in terms of inventory levels. The combination of people, processes and advanced solutions are helping the manufacturer to deploy the right inventory strategies and address today's challenges in the semiconductor industry.



Working with each individual customer, JDA conducts a deep analysis of these and other inventory issues as they relate to the end-to-end global supply chain and then creates customized dashboards, process playbooks and other unique tools that help the customer team make ongoing improvements in the following areas.

JDA solutions and services support ongoing results because they are:

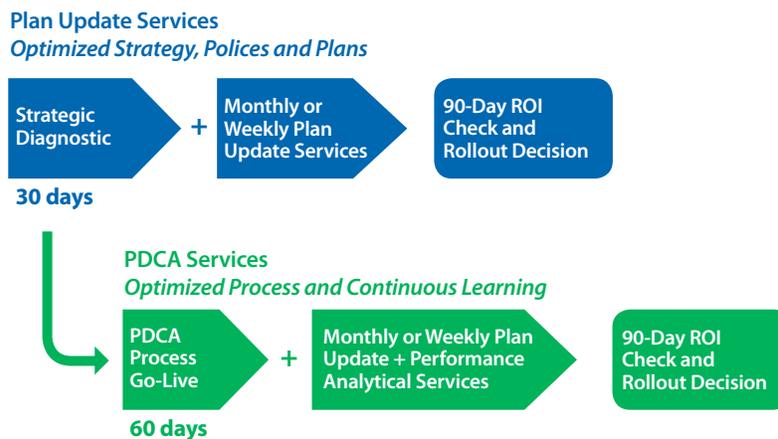
- **Sustainable.** Recognizing that inventory optimization must be an ongoing effort, JDA solutions allow customers to create unique processes that are highly sustainable — making it as easy as possible to monitor performance and make improvements. Many JDA customers optimize their inventory targets on a weekly basis to ensure that they reflect actual customer demand levels, supply constraints, and other critical inputs.
- **Repeatable.** After JDA has worked with a company to create customer-centric process playbooks, dashboards and other inventory management tools — matched by business policies and processes that support them — improvements can be implemented across the diverse units and facilities that comprise the end-to-end supply chain. By repeating inventory optimization processes across the global supply network, JDA customers can create a broad strategic advantage.
- **Scalable.** JDA helps customers minimize their risk by implementing its solutions on a scalable basis. Most businesses begin by addressing an obvious inventory challenge and realizing a quick return on their initial investment. Then they expand their inventory optimization efforts and eventually deploy JDA solutions across the end-to-end supply chain.

JDA's solutions and services are designed to recognize and adapt to changing market conditions, as well as the changing needs of each individual business over time. With a range of sustainable, repeatable and scalable solutions, JDA can help meet the ever-evolving needs of your business, both today and into the future.

JDA also helps its customers minimize their financial exposure by leading the industry in flexible, innovative implementation strategies. In addition to designing all of its technology solutions for maximum scalability, JDA offers services that enable businesses to access the power of its leading technologies at the lowest possible cost.

For example, JDA's Managed Services offering eliminates the need for IT integration or a software installation process — making it faster than ever for customers to see real results from their inventory optimization efforts. By leveraging JDA's Managed Services, new clients have been able to achieve meaningful results in as little as 90 days, identifying and tackling their most pressing inventory management challenges. The graphic below illustrates two alternate engagement paths to rapid value for customers to choose from, depending on their specific business needs.

In the first scenario noted in blue, customers can optimize inventory policies by SKU with minimal disruption to their business processes. By providing product segmentation and more ideal inventory targets, customers can implement better business plans while maintaining their existing processes and management. Conducted by JDA's Implementation Services, the 30-day strategic diagnostic phase focuses on understanding and mitigating the root causes of variability, aligning inventory strategies with business objectives, as well as right-sizing inventory levels for risk and desired service levels.





JDA consultants work with business leaders to evaluate alternative scenarios and identify inventory strategies best suited for each customer's business. Typically it takes an additional two to four weeks for the customer to be ready to provide regular refreshes to the data used in the diagnostic. JDA's Managed Services team can then help customers to immediately put these optimized inventory strategies to work without having to endure a lengthy IT deployment. Ninety days after beginning the update services phase, JDA and the customer are able to conduct a checkpoint to measure the initial return on investment and confirm that business results are trending in the desired direction.

The second path emphasizes process re-engineering in addition to optimized inventory policies. Customers will begin the process with the same 30-day strategic diagnostic phase as noted above, then follow the path down to the 60-day PDCA (plan-do-check-act) process go-live phase in green. JDA industry and process consultants conduct process design workshops at the customer's site using JDA's best-practice process playbooks as a starting point.

Moving to the next stage, the plan and performance analytical services phase encompasses regular performance analysis in addition to inventory target update services. Here, JDA subject matter experts analyze the customer's ongoing business performance and identify likely root causes to inventory issues such as stock-outs and excess inventory. JDA analysts facilitate regular cross-functional meetings at the customer site to validate root-cause analysis and follow up on action plans. By leveraging JDA Managed Services, customers can focus squarely on stabilizing and deploying best-practice processes and realize quick results instead of getting bogged down by a lengthy IT deployment.

Similar to the first scenario's conclusion, the final stage of the second scenario is also a 90-day checkpoint phase to evaluate progress and determine ROI.

### Our Story Is Simple: We Deliver Value

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Perhaps the greatest advantage offered by JDA is a highly customer-centric approach that considers the unique inventory challenges and goals of every customer's business. Instead of trying to force-fit a "one size fits all" solution into every organization, JDA recognizes the nuances of every end-to-end global supply chain, as well as the highly specific top-level goals of each business.

JDA's mission is a simple one: We strive to deliver value to our customers — in the way that they define value. We custom-tailor our solutions and services to the real-world supply chain needs of every customer organization.

How successful have we been at fulfilling this mission of value delivery? To get a sense of the customer-centric inventory optimization value provided by JDA, consider these diverse customer examples:

- **Leading automaker Mercedes-Benz USA** more effectively manages its tremendous spare parts inventory, which includes 87,353 parts and 331,489 worldwide part locations. With 11,000 daily spare parts orders, worth more than \$6 million, Mercedes-Benz was challenged to ensure that the right part was always in the right place at the right time. JDA worked with the company to implement a system of bi-weekly parts forecasting — matched with daily replenishment planning — to ensure that the spare parts inventory could be managed with greater agility and accuracy across the entire global supply chain.
- For a **leading consumer electronics firm**, the challenge was to achieve rapid improvements for a subset of critical parts that needed to be optimized. JDA launched its inventory optimization solution in the form of a managed service, eliminating the need for IT integration or software installation. With JDA as a remote host for the technology, this business was able to use customized process playbooks, weekly plan-do-check-act cycles and other process improvements to achieve incredible improvements in just 90 days. For a subset of 150 critical parts, inventory levels were slashed by 55 percent, for a cost improvement of \$17 million — coupled with a 20 percent reduction in stock-outs and a 20 percent reduction in excess inventory.
- With more than one million titles in print and the typical store carrying only 160,000 books, retailer **Barnes & Noble** needed to keep inventory low — while still ensuring that shoppers could find the books they wanted. Tremendous competition in the book-selling market — coming from both brick-and-mortar and online competitors — convinced executives that they needed to transform the business into a high-velocity enterprise to compete in the ever-evolving marketplace. JDA helped this major retailer reduce inventory by up to 40 percent, realize \$4 million in annual savings and increase forecast accuracy to more than 85 percent — positioning the business to respond with greater agility in a fast-changing industry.



- A **brand leader in soft drinks and snack foods** turned to JDA for help in managing its diverse global inventory, which includes a mix of high-volume, low-margin products and more profitable niche offerings. While the manufacturer had traditionally focused on protecting sales of its highest-volume products, JDA helped the company realize the incredible value of niche products — by micro-segmenting the entire product portfolio by volume, demand variability, life-cycle stage and margin. As a result of these “designer” inventory strategies for different products, the business has realized higher profitability, as well as better worldwide utilization of plant capacities, raw materials, and other resources.
- **Swagelok**, a manufacturing corporation that delivers thousands of types of fluid system components to a wide range of global industries, sought to improve forecasting and distributing planning using collaborative forecasting and replenishment while maintaining its superior customer service levels with less inventory. Swagelok turned to JDA to optimize inventory levels, synchronize its factories with its supply base and drive personnel efficiency through automation. Replacing inventory with information, Swagelok has seen a significant change in the data that it can now share with its distributors. Through its implementation of JDA solutions, Swagelok has also reduced assembly WIP (work-in-progress) by 50 percent and increased service levels from 95-96 percent to 98-99 percent.
- A **premier department-store cosmetics brand** was challenged with managing demand following its highly visible product launches, which were supported by enormous advertising investments. In the weeks following their initial launch, inventory levels for these new products would often rise dramatically — leading to more than \$200 million in annual obsolescence costs. JDA worked with the company to more accurately predict the demand patterns for new products, as well as to create a new policy to minimize obsolescence risk by holding much of the inventory back at distribution centers until the ultimate success of each launch can be determined.
- With a portfolio of powerful brands claiming to have top-market positions in more than 50 countries, **The H.J. Heinz Company** counts on JDA Software to help optimize its inventory strategy. Striving for the best model to achieve its desired customer service levels at the lowest cost, Heinz implemented JDA's comprehensive inventory optimization technology to better model the relationship between service, inventory and sources of variation for more effective decision making and performance. As a result, Heinz reduced inventory by approximately \$7.5 million, lowered safety-stock levels by 9 percent and improved its ability to shape go-to-market policies all during the first phase of the solution rollout.
- JDA helped a **brand-name manufacturer of consumer appliances** to analyze inventory levels across its global supply network and understand the total landed cost of delivering products to the U.S. marketplace. An in-depth analysis is helping to reduce channel inventories, minimize product obsolescence, and slash logistics costs by relocating manufacturing facilities, in-bound ports, and regional distribution centers to optimize inventory levels across the value chain — while dramatically reducing the total landed costs of its products sold to U.S. retailers and consumers. While this initial analysis is leading to significant immediate rewards, JDA will continue to work with this manufacturer to optimize inventory and re-align the supply chain posture on an ongoing basis, creating a long-term competitive advantage.
- An **international pharmaceutical manufacturer** was challenged with low service levels despite a sizable investment in inventory. By right-sizing the company's inventory to match actual consumer consumption patterns, JDA was able to improve service levels by 20 percentage points, while also reducing overall inventory levels.
- JDA helped a **leading industrial manufacturer** optimize its incredibly complex inventory, which consisted of thousands of SKUs, representing both individual components and finished assemblies. By integrating the company's component inventories with its made-to-stock products, JDA was able to create a new system of optimized postponement, in which work-in-process inventories were held strategically at various positions in the end-to-end global supply chain. The manufacturer was able to reduce its overall costs and inventory levels, as well as its cycle times for product assembly, while still ensuring high customer fill rates. This agile supply chain posture is helping to minimize risk in a dynamic marketplace.
- JDA helped a **leading producer of high-quality tires** deploy supply chain best practices worldwide. The company's roadmap to success was equipped by a fleet of JDA's software solutions that provided the manufacturer the traction it needed to realize real results, including a 16 percent stock-level decrease and a 16 percent increase in customer service levels, as well as institutionalized supply chain processes worldwide. Other benefits included accelerated supply and distribution planning, increased optimizations and flow accuracy. By switching from a homegrown system to one that is able to align demand with fulfillment to determine optimal inventory levels and placement, the tire manufacturer also expects to achieve a 2 percent reduction in safety stock — a significant drop for a company with over 20 billion in sales.



- **A leading manufacturer and distributor of trucks and related aftermarket parts** faced many challenges: with its supply base was in flux and limited cash flow in the supply chain, the company was also experiencing regional sales pattern shifts, inconsistent business conditions and changes in product lifecycles. Given a corporate directive to reduce inventory without reducing customer service levels, the company sought the help of JDA to provide a more scientific approach to assign safety-stock levels. After analyzing its current business processes and implementing a new method of item classification, the company now targets safety stock where it best supports the business. As a result, the company reduced safety stock by 76 percent, increased inventory turns by 16 percent and reduced global inventory by 11 percent, all while maintaining fill rates and customer service levels.

A pioneer in the supply chain industry, JDA is uniquely qualified to help any business with its specific inventory optimization challenges, while honoring its top-level strategies and achieving improvements in other areas of the supply chain. JDA also works to create an ongoing optimization capability within the business, so that improvements can be achieved on an ongoing basis — and performance levels can continue to improve, long after the initial technology implementation.

No other supplier understands the challenges associated with inventory at such a deep level — and no other supply chain partner has the same ability to help you turn inventory into a powerful, sustainable competitive weapon.

**About JDA Software Group, Inc.** JDA® Software Group, Inc. (NASDAQ: JDAS), The Supply Chain Company®, is a leading global provider of innovative supply chain management, merchandising and pricing excellence solutions. JDA empowers more than 6,000 companies of all sizes to make optimal decisions that improve profitability and achieve real results in the discrete and process manufacturing, wholesale distribution, transportation, retail and services industries. With an integrated solutions offering that spans the entire supply chain from materials to the consumer, JDA leverages the powerful heritage and knowledge capital of acquired market leaders including i2 Technologies®, Manugistics®, E3®, Intactix® and Arthur®. JDA's multiple service options provide customers with flexible configurations, rapid time-to-value, lower total cost of ownership and 24/7 functional and technical support and expertise.

**WEB**  
www.jda.com  
**EMAIL**  
info@jda.com

**AMERICAS**  
US  
+1 800 479 7382  
Canada & Latin America  
+1 480 308 3555

**EUROPE**  
UK & Northern Europe  
+44 (0) 1344 354500  
France & Southern Europe  
+33 (0) 1 56 79 27 00

Singapore  
+65 6305 4350  
Australia  
+61 2 8912 7900

**ASIA PACIFIC**  
Japan  
+81 3 4461 1000  
China  
+86 21 2327 9400  
Bangalore  
+91 80 3028 8888  
Mumbai  
+91 22 3088 7878

