

# Ford Motor Company: Six Sigma Initiatives Streamline Operations

## Summary

Ford Motor Company, one of the world's largest automotive manufacturers, has worked with Penske on several Six Sigma initiatives. As its lead logistics provider (LLP), Penske's quality team of associates are trained in Six Sigma practices and work closely with Ford to streamline operations and create and maintain a more centralized logistics network. Together they uncovered several areas for real cost savings as a result of reducing inbound carrier discrepancies, eliminating unnecessary premium costs and reducing shipment overages. Plus, Penske implemented accountability procedures and advanced logistics management technologies to gain more visibility of its overall supply network.

Challenges	Solutions/Results
<ul style="list-style-type: none"> <li>▪ To develop, implement and operate a centralized logistics network for Ford.</li> <li>▪ To streamline supplier and carrier operations for improved performance and accountability.</li> <li>▪ To provide Ford with real-time supply chain and financial visibility.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Penske established 10 Order Dispatch Centers (ODCs) and consolidated shipments to plants. Approximately 1,200 trailers now ship to and from Ford's ODCs per day, with most trucks at 95 percent capacity. Penske has reduced plant inventory by 15 percent.</li> <li>▪ Penske trained more than 1,500 suppliers on a uniform set of procedures and logistics technologies. Stringent carrier requirements and a Carrier Rating System were implemented to measure carrier performance.</li> <li>▪ Penske implemented strict accountability procedures and advanced logistics management technologies to gain real-time visibility of delivery status, routing schedules and productivity. A new freight billing system was designed to immediately capture logistics costs.</li> </ul>

## Getting Started

Today, Ford owns and produces automobiles under eight major brands: Ford, Lincoln, Mercury, Mazda, Jaguar, Land Rover, Aston Martin and Volvo. In 2006, more than 6.6 million Ford-manufactured automobiles were purchased throughout the world. As a result, Ford maintains one of the auto industry's most complex manufacturing, transportation and distribution networks.

Penske Logistics began its relationship with Ford in 1996 as lead logistics provider (LLP) for Ford's assembly plant in Norfolk, Virginia. At the time, each of Ford's 20 North American assembly plants managed its own logistics operations. A decentralized approach provided total control of logistics at the plant level, but presented costly redundancies in materials handling and transportation.

In 1999, Ford conducted studies to determine the benefits of transitioning the company's decentralized logistic operations to a centralized approach. The decision was quickly apparent - centralization of the company's logistics operations would increase both velocity and visibility throughout the network, as well as reduce supply chain costs.

Ford selected Penske as its North American LLP in July 1999. Under

*Dedication at every turn.*



the contract, Penske would centralize and manage all inbound materials handling for 19 assembly plants and seven stamping plants.

### **Consolidating Logistics Operations Under One Umbrella**

Penske immediately developed an aggressive logistics transition program with Ford. Penske would provide Ford with a single point of contact for all logistics operations.

By working with individual plants and corporate management, Penske established a baseline of current operations and outlined the proposed solutions. The new logistics program would establish a Penske Logistics Center that included the following core functions:

- Network Design Optimization - implement a more efficient inbound materials strategy through order dispatching centers (ODC)
- Carrier and Premium Freight Management - manage all carriers and logistics companies, while reducing premium freight costs
- Information Technology System Integration - achieve real-time visibility of supply chain shipments, schedules and orders
- Finance Management - improve freight bill payment, claim processing and resolution throughout the supply chain

Upon development of this new plan, the Penske/Ford team began evaluating Ford's existing network design. Under the plant-centric approach, suppliers would make multiple deliveries of the same parts to different plants. A supplier would pick up a small load, deliver it to one plant, pick up another small load of the same parts and deliver it to another plant. Carriers with half-empty trucks would often cross routes with each other en route to the same plant. Aside from being highly inefficient, this design allowed for excessive inventory and storage costs at the plant level.

To centralize transportation and distribution operations, Penske implemented a new network design consisting of 10 new ODCs. The ODCs would be a central delivery point for suppliers. Different supplier shipments going to the same plant would now be cross-docked into trailers at the ODC. Loads would be consolidated and delivered on a scheduled basis to reduce the amount of milkruns, less than truckload shipments (LTL) and premium freight charges. To meet Penske's new transportation and distribution standards, more than 1,500 suppliers were trained on new uniform procedures.

For carrier and premium freight management, Penske's goal was simply stated: maximize carrier service, minimize carrier costs. Penske refined Ford's carrier bidding process by placing more stringent requirements on carrier partners. Carriers were now required to meet specific safety, equipment and technological specifications; provide experienced and certified drivers; and show proven experience of on-time delivery/pickups.

Penske's new procedures required carriers to meet established route pick up and delivery windows within 15 minutes of the scheduled time. Additionally, carriers would supervise loading and unloading operations to verify order accuracy, adequate packaging and labeling, and freight damage.

With new stringent carrier requirements in place, Penske closed the accountability loop by implementing a Carrier Rating System. All incidents would be recorded and reported. Carriers would issue corrective action reports for actions that negatively impacted Ford's operations. If a carrier accumulated an excessive amount of incidents on their "scorecard," Penske would issue a low carrier rating, thus jeopardizing the carrier's ability to participate in future bids.

Penske also implemented several information technology solutions throughout the logistics network, including its proprietary Logistics Management System and RouteAssist, an advanced routing tool. Other programs included a web-based metric reporting system and order tracking software. Drivers were provided with PDA scanners and an electronic driver log. Carriers were now required to have satellite communications and engine monitoring systems on all trucks for load tracking. ODCs were provided with integrated RF cross-dock scanners that tracked the delivery of individual parts.

Prior to implementing a centralized approach, Ford was unable to gain a clear view of the financial status of logistics operations. With approximately 1,500 suppliers handling more than 20,000 shipments per week, freight billing was complicated. As part of its carrier management system, Penske would now provide drivers with a single set of paperwork procedures to ensure delivery documentation was collected and submitted to accounting. Penske developed a new freight billing system that would capture freight costs and allocate those costs by plant. As a result, Ford could see which plants had the highest and lowest freight costs and which carriers were most cost effective.

### **Penske & Ford: Entering a New Century of Automotive Achievement**

By February 2001, Penske had completely transitioned Ford's logistics operations to a centralized network design. More than 700 inbound and 500 outbound trailers now move to and from Ford's ODCs per day, with most loads carrying at 95 percent capacity. Shipments are consolidated at the ODC and previously unused cross-docking space is now in high demand. Fourteen million pounds of freight are cross-docked each day, resulting in an inventory reduction of 15 percent.

Suppliers and carriers currently operate under a single set of transportation and distribution procedures, enabling better service throughout the supply chain. The level of accountability established with Penske's Carrier Rating System has enabled Ford to rid its distribution network of costly, ineffective carriers.

With uniform technologies, ODCs are able to monitor shipments, identify inefficiencies and address materials handling issues in a real-time environment. Furthermore, logistics costs now enter the supply chain immediately. This allows Ford to see overall supply chain costs and per plant allocations at any given point in time.

Penske met its logistics program objectives six months ahead of schedule - a testament to the joint-team approach established between Penske and Ford. More importantly, as Ford continues to evolve, the Penske Logistics Center provides Ford with a single point of contact for all logistics operations.

***"Having a single point of contact delivers more than cost benefits. Penske allows us to clearly understand how our logistics operations impact the entire company. From the assembly line to the end-consumer, the efficiencies provided by Penske are realized at virtually every level throughout Ford."***

**Grant Belanger, director of material planning and logistics, Ford Motor Company**

Penske continues to deliver significant cost savings to Ford by continuous process improvement. In 2003, to keep pace with assembly plant requirements, Penske closed six of its ODCs due to a change in shipping frequency strategy. With four ODCs operating at full capacity, Penske once again streamlined its logistics strategy to reduce costs for Ford.

In April 2004, Ford honored Penske with two Q1 awards, its highest recognition of superior supplier quality. Today, with a century of automotive achievement behind them, Ford and Penske continue to redefine the highest standards for logistics and operational efficiency.

**For more information on Penske Logistics solutions, visit [www.GoPenske.com](http://www.GoPenske.com).**

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