



Monitor. Alert. Recover. Optimize. Monitor. Alert. Recover. Optimize. Monitor. Alert. Recover. Optimize.

Quick View:

Company:

Ford Motor Company



Key Challenge: To balance inbound freight costs for thousands of parts across hundreds of suppliers, with the high frequency of deliveries needed to support JIT automobile manufacturing.

Solution: Ford deployed a solution from Viewlocity that considers multiple factors and constraints necessary to meet lean manufacturing requirements at the lowest possible cost. Factors considered include...

- Load sequencing across suppliers
- Quantities per load
- Trailer capacity
- Load configuration
- Dock schedules & capacities
- Production schedules
- Target plant inventory levels
- Return of part containers to suppliers

Upon consideration of all of these factors, the Viewlocity Inbound Planning solution determines the plan for the right quantity and delivery frequency for every part at the lowest possible cost. It was first employed by Ford Materials Planning & Logistics group to support the launch of the latest version of the company's best selling F-150 pickup.

Results: Fewer transport miles, better trailer utilization, reduced LTL and air freight, and integration of returnables into the primary logistics plan allowed Ford to save 5% of their total inbound freight costs.

Long ignored, inbound freight takes center stage...

"Ford spends over \$6 billion a year on freight," said Chris Donnelly, Logistics Manager, Forward Model Planning at Ford. "Getting part quantities and delivery frequencies from suppliers optimized to support lean manufacturing operations is challenging. Doing it at the lowest possible cost can seem downright impossible."



The 2004 Ford F-150 is a totally new, re-designed version of the company's best selling vehicle. Ford's Material Planning & Logistics group was tasked with estimating all inbound logistics costs in planning the new vehicle's launch. The group retains responsibility for the project as changes are made and as the project goes from planning stages into execution. Their pre-production models and plans had to keep up with design and supplier changes throughout the process.

The Challenge – Lean Manufacturing Without Shifting Costs to Logistics

With very small quantities of inventory on hand at plants, inbound logistics is a very crucial function in a lean manufacturing environment. Mistakes are quickly felt on the production lines and can have enormous implications. The natural tendency is to overspend on logistics, making sure the plants always have what they need. But that doesn't benefit the organization as a whole.

So how can inbound logistics be planned in a way that optimizes both plant operations and logistics spending?

The Solution – Ford Takes a New Approach

Prior to this project, Ford was unable to consider its entire supplier network as a whole. Rather, they had analysts creating islands of optimization around certain suppliers or parts. There was no network wide plan, or way to consider the impact of design and part changes on logistics, a poor link between logistics and plant operations, and no way to consider tradeoffs between the many variables in the equation.



“Frankly, we were surprised by the value we realized from this project. Five percentage points off of our inbound logistics costs is a big number. The way we do things now, with the help of Viewlocity, represents a substantial improvement.”

– Chris Donnelly,
*Logistics Manager,
Forward Model Planning,
Ford Motor Company*

Work was done on spreadsheets populated by manual data extracts from Ford’s legacy applications, requiring a massive effort. Internal employees and consultants used the data to create plans using traditional transportation optimization technologies, which failed to consider many of the key constraints. In addition, the plans considered only partial Bills of Material and were static – they could not be used to react to changes in design and sourcing, both of which were common.

With 400 suppliers, 2500 parts and 3 assembly plants for the new vehicle, Ford realized that new methods and technologies would be required to achieve significant improvements. A review of available technologies identified Viewlocity’s Inbound Planning product as the only software specifically designed to address these challenges.



Viewlocity Plays a Role

Although Ford was already running software from i2 and CAPS Logistics, neither product had the needed functionality. Viewlocity’s Inbound Planning product was the only software able to simultaneously consider all of the routing and consolidation opportunities in the network to find the lowest total logistics cost. The software is also able to calculate shipment quantities and delivery frequencies for all of the parts, matching them against the carrier network’s capabilities, costs and operating characteristics. The result is an operational logistics plan supporting JIT manufacturing, ready for execution.

Ford can now...

- Synchronize material flows with in-plant production flows prior to launch
- Analyze mode trade-offs & other “what if” scenarios
- Accurately forecast material logistics costs (+/- 2%)
- Quickly determine impact of program changes on the logistics network
- Quickly respond to changes at plants or with suppliers

Input variables include:

- Target inventory levels at the assembly plants
- Supplier locations
- Mileage & transport times
- Dock capacities and schedules
- Trailer size & part or part container size
- Transportation & Material handling costs



About Viewlocity

Companies widely viewed as running the world's most finely tuned supply chains are learning how to adjust their operations "on the fly." Realizing that even the best plans are never 100% accurate, Viewlocity provides software that helps companies identify points in time when, as information and goods are moving through the supply chain, adjustments can be made to increase profits and raise customer service levels.

*Viewlocity also provides the most comprehensive product available for planning inbound materials logistics at the lowest cost. To find out how companies like Dell, the Ford Motor Company, and over 70 other leading companies use Viewlocity's software to improve their operations, call **1-877-512-8900** or visit our website www.viewlocity.com.*

Output includes:

- Inbound Routes for TL and LTL (milk runs)
- Quantities of each part per load
- Stowage/load configuration plans
- Delivery frequencies
- Outbound routes for return of part containers to suppliers

The Rollout

Ford first employed the tool strategically, modeling the logistics cost for the launch of the next edition of their best selling vehicle, the F-150 pickup. The tool not only enabled them to accurately predict logistics costs for the vehicle, but also allowed them to model how supplier and vehicle design changes would impact costs. Ford then used the same tool on a tactical level to build their actual logistics plans for all inbound freight.



Following the success on the F-150, Ford now uses Viewlocity's Inbound Planning product to model their entire North American logistics network to optimize for the lowest total cost across 21 assembly plants, 1000 suppliers and over 20,000 sku's.

Issues Encountered

Implementation of the Viewlocity product was straightforward. Some difficulties did arise, however, during the process of automating data collection of data for the various inputs. This information was coming from multiple locations at Ford, including some older, legacy systems. Once access to these information sources was automated, the project went smoothly.

Results

"The Viewlocity project delivered an on-budget logistics plan that met all expectations, drove cost reductions and resulted in no surprises at launch," said Ford's Chris Donnelly. "This is the first time we've been able to accomplish this."

Beginning with the new F-150, Ford can now construct a complete, part-level logistics plan prior to launching a vehicle. This yields a very accurate logistics cost estimate and allows them to model the impact of design, part, and supplier changes on their inbound logistics network and associated costs.



About Ford Motor Company

Ford Motor Company, a global automotive industry leader based in Dearborn, Mich., manufactures and distributes automobiles in 200 markets across six continents. With more than 318,000 employees worldwide, the company's automotive brands include Aston Martin, Ford, Jaguar, Land Rover, Lincoln, Mazda, Mercury and Volvo. Its automotive-related services include Ford Credit, Quality Care and Hertz. Ford Motor Company celebrated its 100th anniversary on June 16, 2003.

Specific improvements include:

- Reduced TL & LTL freight due to effective planning of milk run truckloads
- More effective milk run planning (fewer miles, better trailer utilization)
- Reduced premium LTL & air freight due to fewer "spillover" situations
- Increased utilization of trailers due to better load planning
- Integration of part container returns to suppliers within the primary logistics plan

Overall, Ford estimates their savings from this project at 5% of their total inbound logistics spend.

Logistics Finally Catches up With "Lean"

The successful implementation of this project, enabled by Viewlocity, has finally enabled logistics to catch up with the lean manufacturing facilities they serve. Previously, manufacturing with little on-site inventory left logistics scrambling to keep the plants running. In many cases, this shifted costs from manufacturing to the logistics function and to suppliers. Now, in Ford's case, the entire operation is truly lean with considerable cost savings being derived in both manufacturing and logistics.

IPE Functional Architecture

