



7 Kasım 2012 - Çırağan Palace Kempinski

# IBM Connected 2012 Istanbul

Learn. Collaborate. Innovate.





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## Smarter Commerce: Create Adaptive Supply Chain Networks with iLOG Optimization

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Chain Solutions



# The balance of power over **brand preference** and **buying decisions** has shifted from the brand owner to the newly-empowered Smarter Consumer



Instrumented



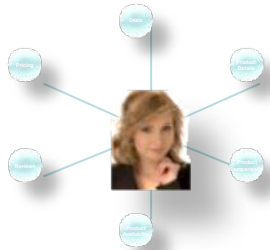
Interconnected



Intelligent



Engaged



Empowered



Influenced/  
Influencing



Brand Preference



Buying Decisions

IBM Smarter Commerce adopts an “outside in” view to drive corporate processes; one focused on the “empowered consumer”



### CREATE CUSTOMER-DRIVEN BUYING EXPERIENCES

- Apply insights from a 360° customer view to improve customer interaction and personalization
- Buy anywhere, anytime, across any channel, without complication
- Guide the sale, shape the demand, simplify complex ordering
- Provide a single face to the customer for promising, visibility and fulfillment



### CREATE ADAPTIVE SUPPLY CHAIN NETWORKS

- Identify the best options for sourcing, production and inventory to ensure cost-effective responses to customer demand
- Provide multi-enterprise value chain visibility and monitoring
- Ensure reliable, scalable, visible B2B commerce with all trading partners
- Optimize aftermarket service and reverse logistics

# Smarter Commerce helps companies create customer-driven buying experiences

How companies must differentiate their marketing & sales

Apply insights from a 360° customer view to improve customer targeting and interaction personalization

Required Capabilities

Marketing Analytics & Multi-Channel Marketing

Business Outcomes

- ✓ Increased market share
- ✓ Increased brand loyalty
- ✓ Higher, faster conversion rates

Let customers buy anywhere, anytime, across any channel, without complication

Cross-Channel Selling

- ✓ Increased customer retention
- ✓ Increased channel partner and direct sales revenue

Guide the sale, shape the demand, simplify complex ordering

Cross-Channel Selling (CPQ)

- ✓ Greater share of wallet and average order size
- ✓ Consistent margin attainment
- ✓ Lower returns and fewer errors

Provide a single face to the customer for promising, visibility and fulfillment

Multi-Channel Fulfillment

- ✓ Lower total inventories
- ✓ Reduced order processing costs
- ✓ Higher “perfect” order rates

# Smarter Commerce helps companies create adaptable supply chain networks

How companies must align their supply chains to meet customer expectations

## Required Capabilities

## Business Outcomes

Identify the best options for sourcing, production and inventory;

Procurement  
Sales & Ops Planning  
Supply Chain  
Optimization

- ✓ Agile sourcing
- ✓ Manage supplier risk
- ✓ Higher inventory turns
- ✓ Higher utilization of plants and other supply chain assets
- ✓ Reduce total supply chain costs
- ✓ Better matching of supply to demand
- ✓ Increased on-time performance
- ✓ Higher inventory turns

Provide multi-enterprise value chain visibility and monitoring

Supply Chain  
Visibility

Ensure reliable, scalable, visible B2B commerce with all trading partners

B2B Trading  
Partner  
Collaboration

- ✓ Reduced trading partner onboarding costs
- ✓ Reduced supplier SLA non-compliance
- ✓ Reduced order admin costs

Optimize aftermarket service and reverse logistics

Multi-Channel  
Fulfillment

- ✓ Higher spare parts service levels
- ✓ Reduced reverse logistics costs
- ✓ Increased recovery of returned assets

# Depending on the complexity of the problem, IBM offers various tools



# For Supply Chain Optimization problems, IBM Has a Complete Strategic Supply Chain Planning Suite

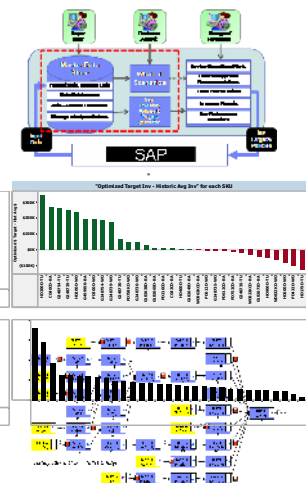
- **IBM ILOG LogicNet Plus XE for Network and sourcing optimization:** location of facilities, assignment of stores, managing seasonality, and carbon foot printing.

Value: **5-15% reduction** in supply chain costs, better service to stores and for ongoing multi-plant production sourcing and capital investment decisions; Enhanced S&OP capability; **2-5% reduction** in ongoing manufacturing costs



- **IBM ILOG Inventory and Product Flow Analyst for Enterprise multi-echelon inventory optimization and strategic analysis:** integrated inventory planning within your ERP system.

Value: 10-30% reduction in inventory costs, better fill rates. And of analysis to determine strategic shifts in your inventory policies and practices.



- **IBM ILOG Transportation Analyst for Transportation optimization:** routing analysis, backhaul, mode selection, and fleet sizing.

Value: 10-30% decrease in trans costs





# Business Challenges addressed using LogicNet Plus

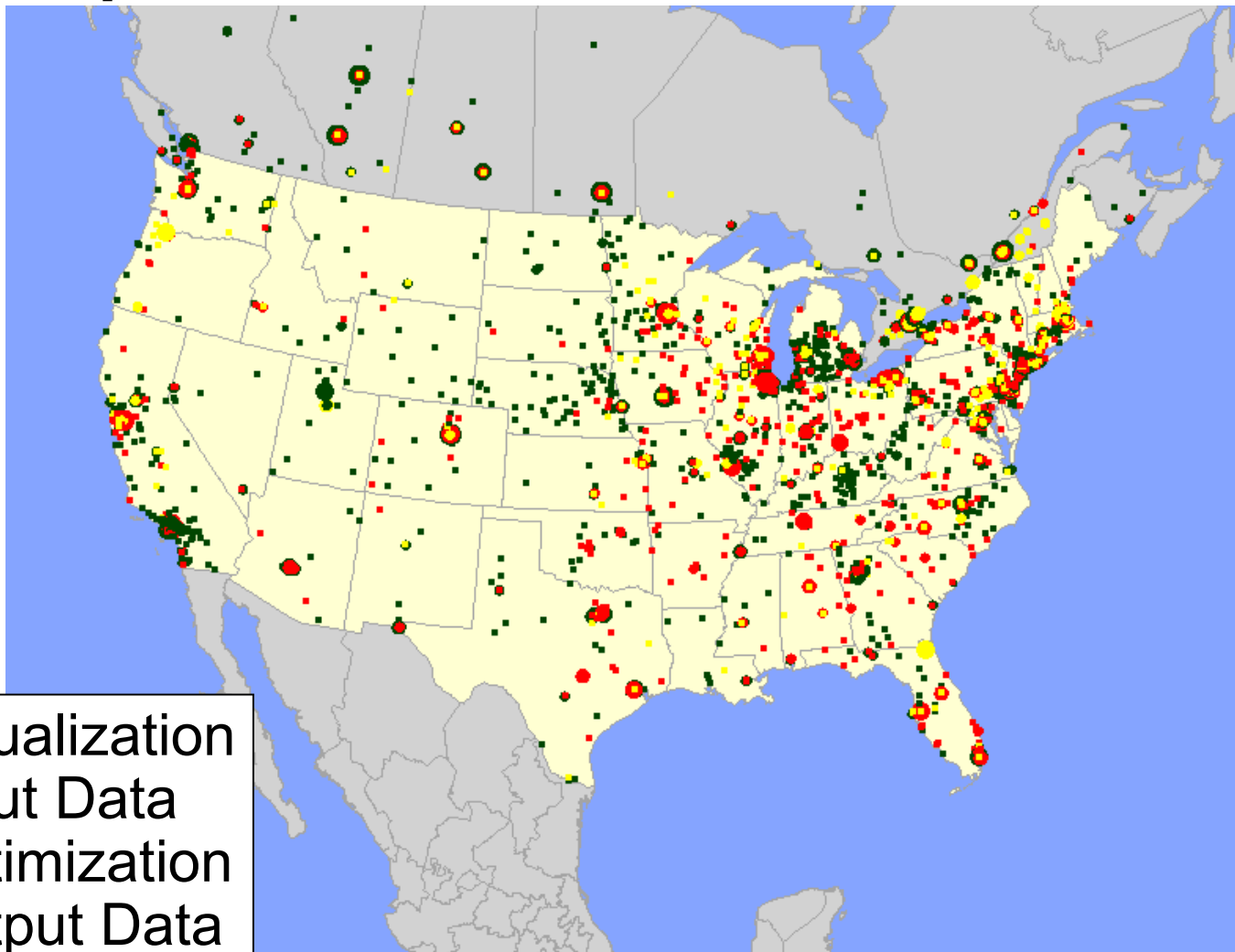
## Strategic Network Design

- What is the optimal number, location, and capacities of suppliers, plants, production lines and processes
- What is the optimal number, location and sizes of DCs, consolidation centers, cross docks
- What is the best way to assign customers and products to DCs
- What is the impact of changes in production and warehousing capabilities on cost & service
- Determine trade-offs between
  - Inbound & outbound freight costs, duties etc.
  - Transportation costs and warehousing costs
  - Manufacturing costs
  - Costs and service levels

## Production Planning / Sourcing

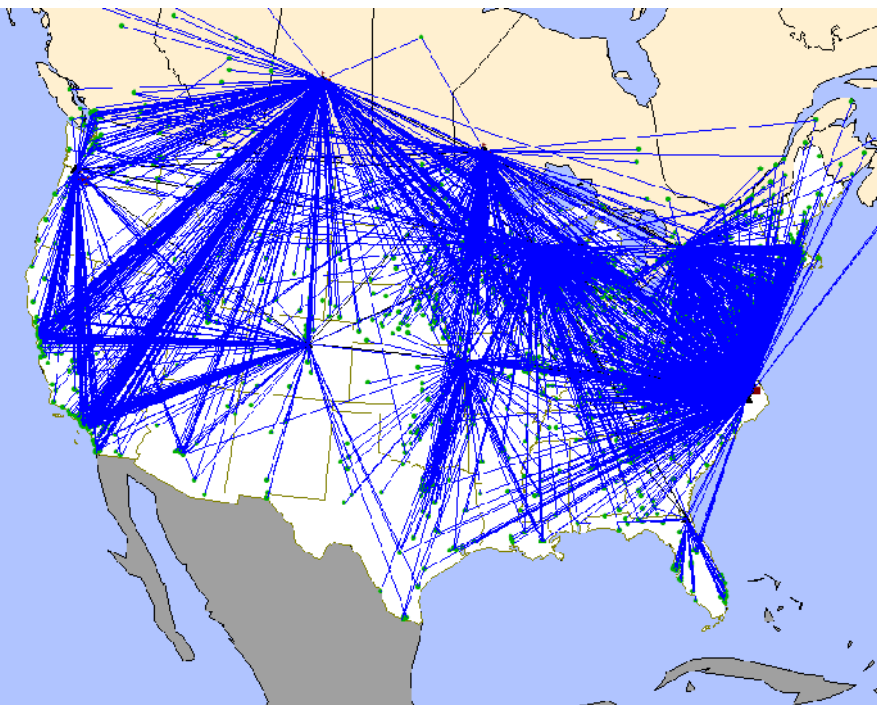
- Which products should be made where and where should they be shipped to?
  - Single sourcing vs. dual sourcing
- From which suppliers should raw materials be sourced for which manufacturing plants?
- Due to seasonality of demand and/or production capabilities, should product inventory be prebuilt and stored in anticipation?
- What is the impact of changes to production equipment location / capability on overall supply chain costs?
- What is the timing of changes to the supply chain?

# Components of Network Design



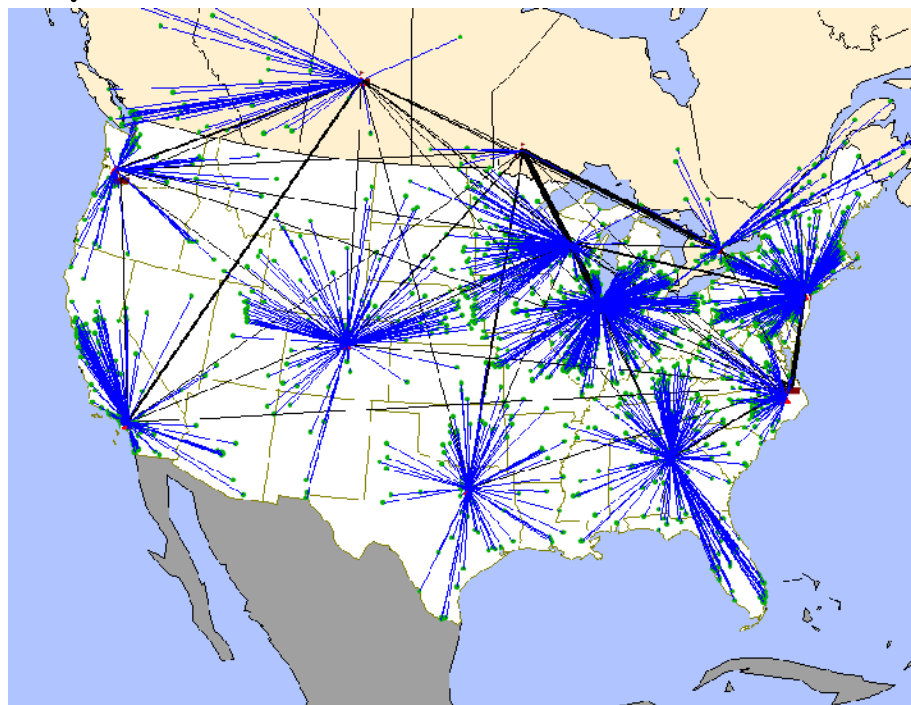
1. Visualization
2. Input Data
3. Optimization
4. Output Data

## Optimal Network For Cost



Savings: \$6 million  
Service: 40% next day

## Optimal Network For Service



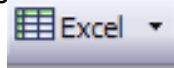
Savings: \$3 million  
Service: 80% next day

**Which is Better?**

# LogicNet Plus: Built to be Easy for Business Users

- Clean Design

- Menu's organized to facilitate understanding of the model
- Easy to build simple models and add complexity
- Easy to move scenarios between models

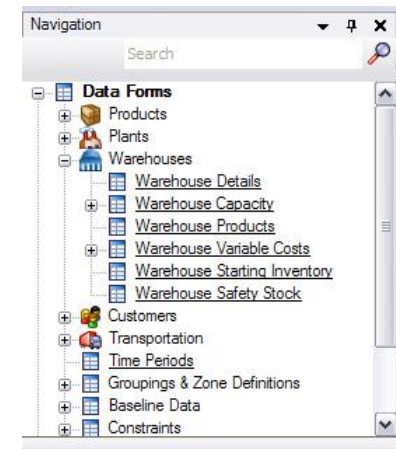


- Tight Integration with Excel and Access

- Import wizards that pull data from Excel or Access files
- Edit in Excel within the application
- Edit multiple scenarios at one time
- Easy to get data back out to Excel and Access for analysis

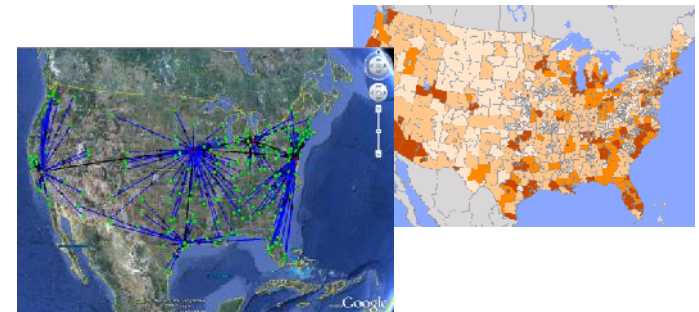
- Robust Product with Helpful Feedback

- Backend SQL Server database
- Ability to run in multiple scenarios in parallel; Ability to run a single scenario on multiple threads
- Robust Referential Integrity
- Advanced error messages with strong partial solution analysis



- Good Visualization

- Detailed mapping with the ability to add views
- Site sizing, site coloring, ability to shade map
- Quickly change between a number of graphical displays



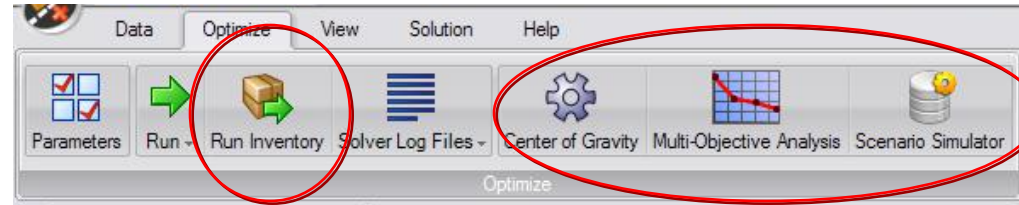
- Links to Other Systems

- CZAR LITE, UPS
- PC\*Miler

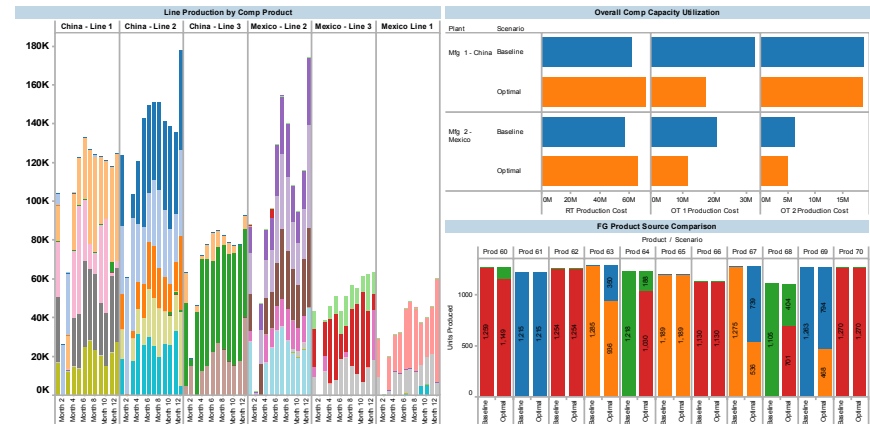


# In-depth functionality with Innovative Features

- Multi-time period for multi-year or seasonal planning
- Unlimited network echelons with detailed transportation modeling including min/max volumes on lanes for groups of sites
- Unlimited BOM, including multiple recipes and by-products
- Detailed sourcing rules for customers and warehouse (single source, dual source, grouped single sourcing, etc)
- Detailed process modeling including lot sizes, overtime, yield, tooling, tanks, and production moves
- Tax modeling and currency exchange rates
- Economies-of-scale modeling
- Carbon footprint modeling:
  - Report on supply chain carbon emissions
  - Set carbon emission constraints
  - Set costs/credits for carbon trading



- integrated Tableau® configurable reporting:
  - Configure customized reports with simple drag and drop functionality
  - Create and Save report setup for instant updated display after each new 'what if' analysis



# Strategic Transportation Questions addressed with Transportation Analyst

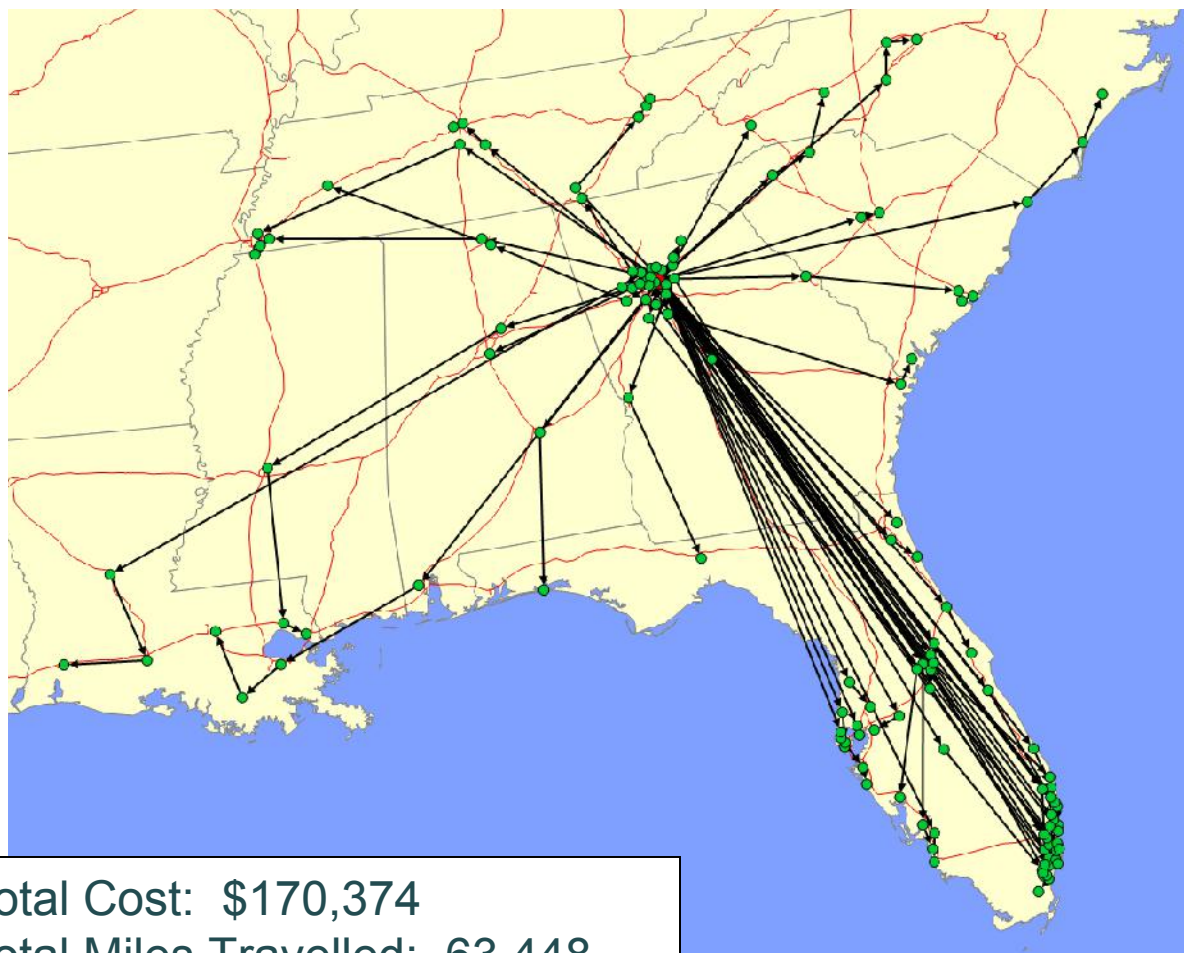
- For a given set of shipments, what are the best routes?
  - Can be used to set budgets and fixed routes
  - To analyze different business rules– time windows, rules for service times
- What are the opportunities for combining shipments and finding continuous moves?
- Which shipments should use private fleet? Commercial truckload? LTL?
- What should the fleet size be?
- What is the impact of backhauls? How can running inbound and outbound transportation together save additional money?
- How should hubs be used?
- After the re-design of a supply chain, how are the routes, multi-stops, and transportation operations impacted?
- What is the carbon footprint of the transportation?



# Case - Route Planning

- A retailer was manually planning their current fixed routes outbound from their Depots to Store locations handled by commercial TL Carriers
- Management was interested in determining whether planning this with Transportation Analyst could produce more optimal routing operations
- Other Considerations Included:
  - What is the affect of the frequency of running these routes and what frequency is optimal?

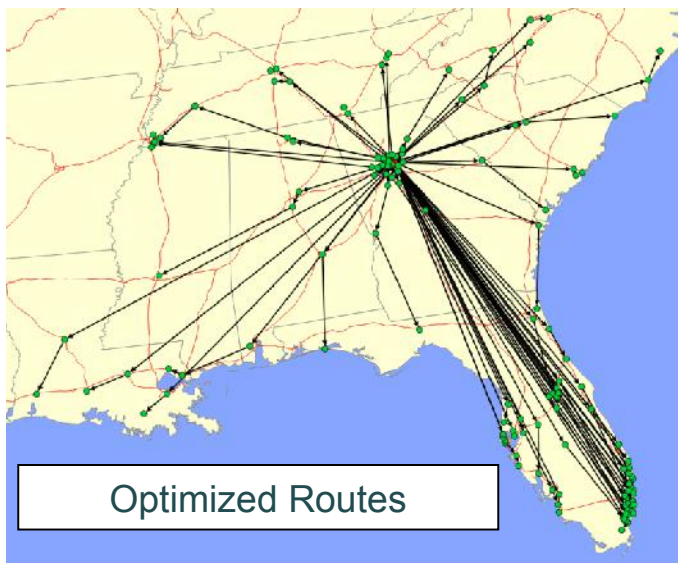
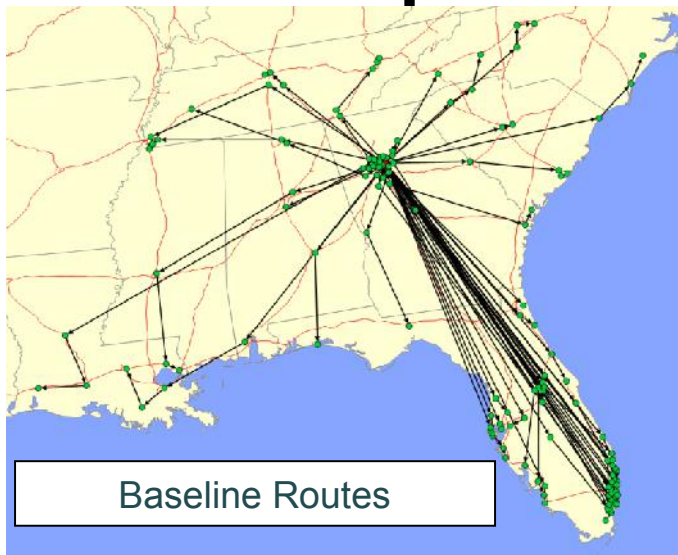
# Baseline



Total Cost: \$170,374  
Total Miles Travelled: 63,448  
Number of Trucks Utilized: 135



# Optimized Baseline



Although more Min Charges are assessed significant savings in Mileage and Drop-off Charges creates this optimal solution

Category	Baseline	Optimized
Total Distance	63,448	57,809
Shipments Delivered	140	140
Number of Vehicles Used	135	136
Travel Cost	\$160,474	\$145,820
Min Charges	\$1,100	\$3,850
Drop-off Charge	\$8,800	\$1,920
LTL Carrier Cost	\$0	\$0
<b>TOTAL COST</b>	<b>\$170,374</b>	<b>\$151,590</b>

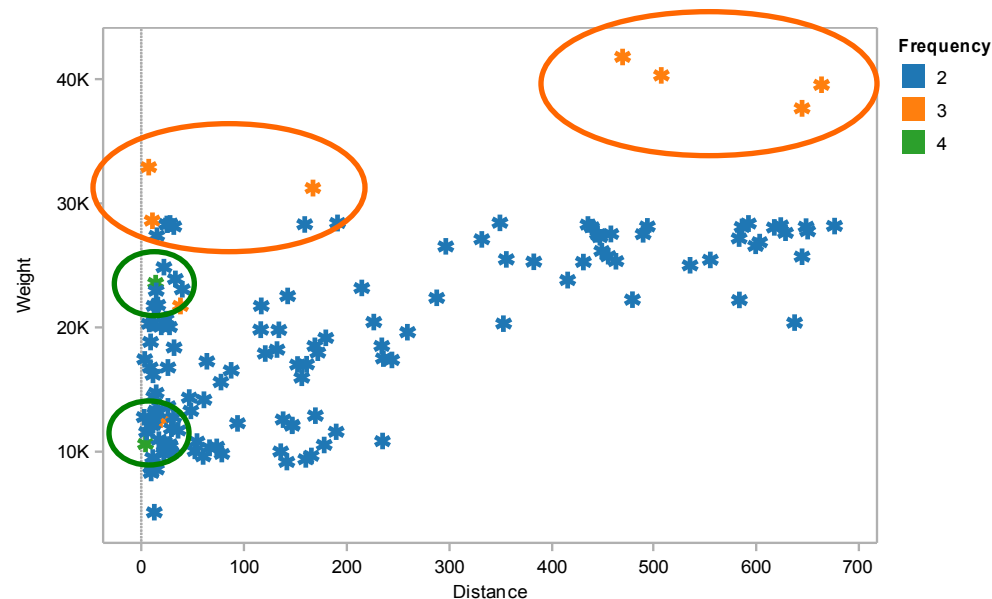
**11% Weekly Savings**

# Results: Frequency Assignments

Frequency of Route	Total # Baseline Routes	Total # Optimized Routes
Twice per Week	23	60
Three Times per Week	27	4
Four Times per Week	2	1

The solver determines that running more efficient (less miles) routes less times per week is a more cost optimal solution than their baseline route structures...

## Optimal Frequency Results

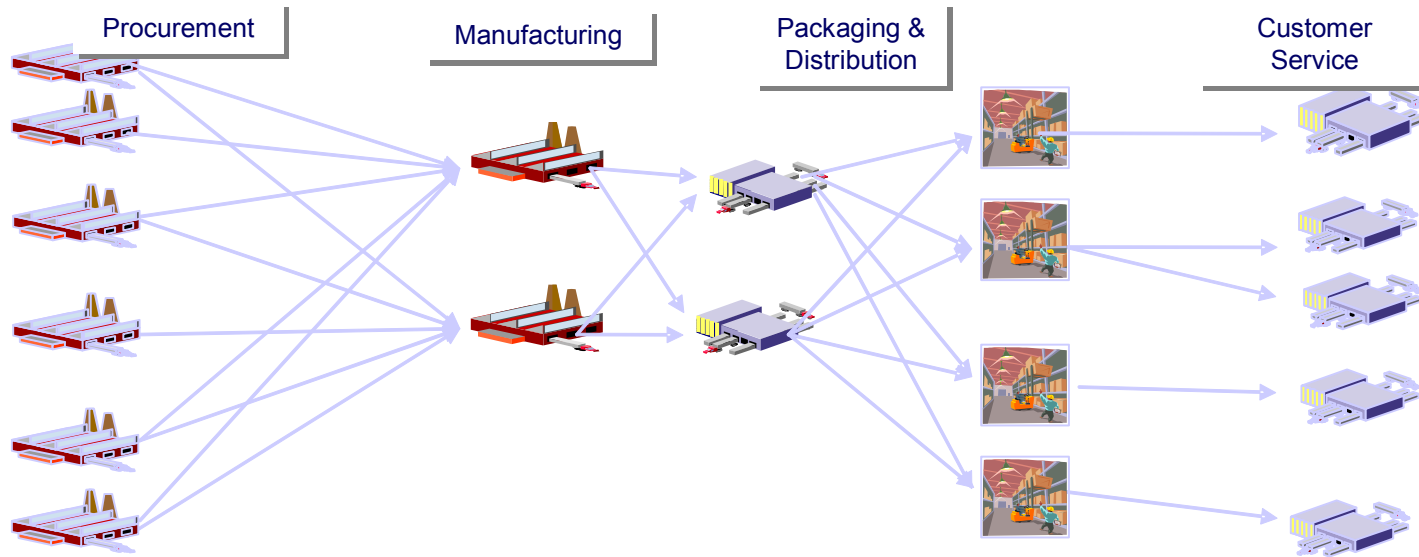


**Follow-up Analysis:** This company then evaluated the trade-offs between this new structure and additional inventory and service concerns

# Inventory Optimization Questions

- What should be my base stock and safety stock targets for plants and distribution centers ?
- How can I evaluate centralized vs local inventory strategies and choose the optimum approach ?
- How can we capture inventory requirements in current and future networks ? What should be the inventory levels at all tiers of the network ? What will be the impact of changes in service times and customer fill rates
- What will be my warehouse space requirements and the possible bottlenecks that can occur as the business grows in the following 5 years?

# Inventory Analyst™ – Multi-Echelon Optimization



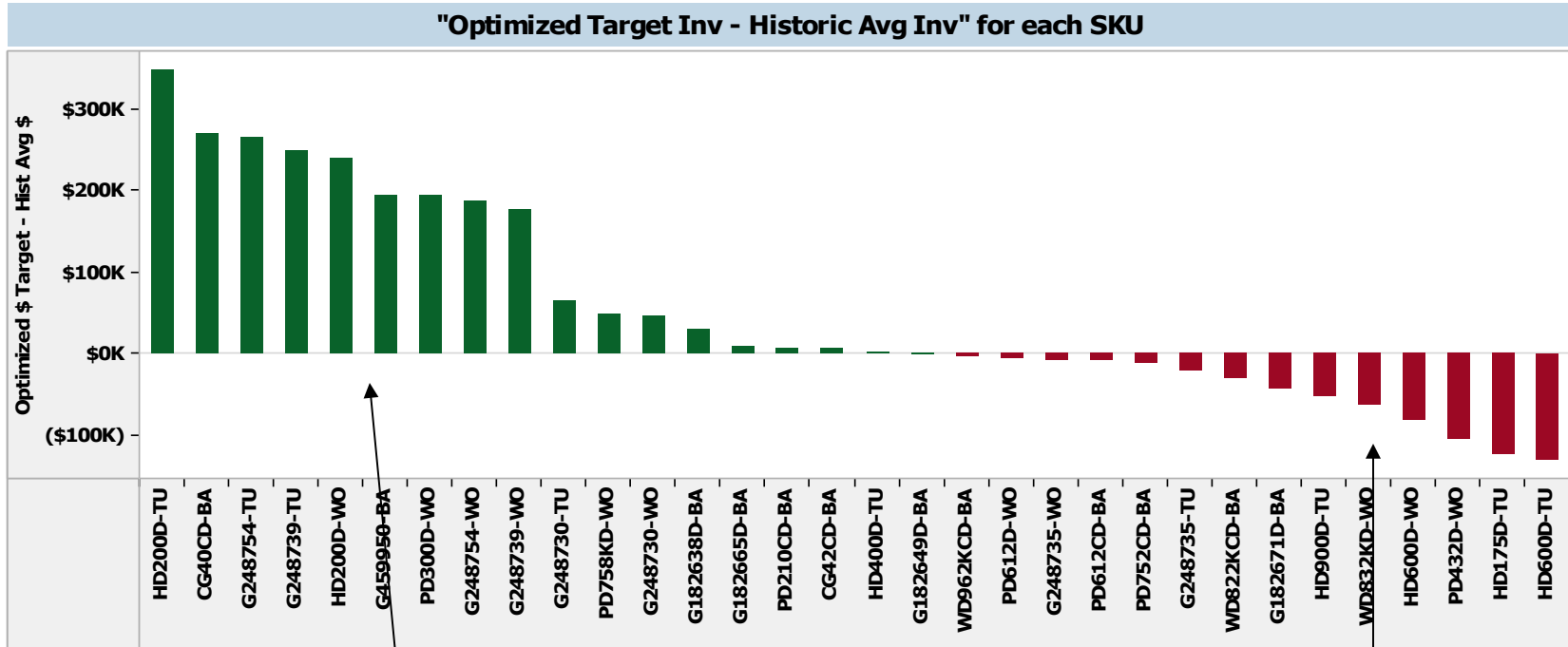
## Strategic

- Evaluate supplier sourcing
- Postponement strategies
- Make to Order vs Make to Stock
- Transportation decisions
- Central stocking strategies
- Optimize Fill Rate
- Determine optimal Product Flow

## Tactical

- Improve upon rule of thumb or single stage SS calculation
- Evaluate service level changes and impact on inventory
- Stratified service levels to customers
- Feed planning system with SS targets weekly/monthly/Quarterly

# Basis of Inventory Optimization

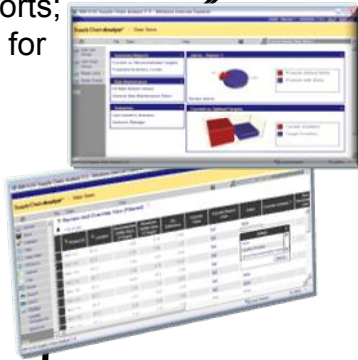


Need more inventory of these—  
Stock-outs or Expedites are the  
problem

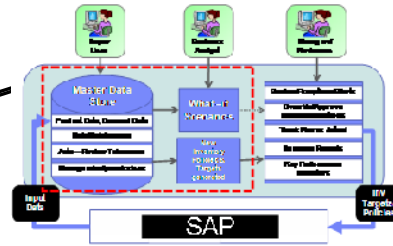
Need less inventory of these.  
Wasted working capital is the  
problem

# Inventory and Product Flow Analyst Solution Set

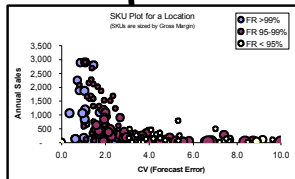
User home-page with alerts and reports; 1-page view for planners



Work Flows, Integration to SAP Enabled for your Enterprise

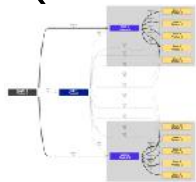


Data maintenance; Auto-review, segmentation, etc



Service Level Optimization

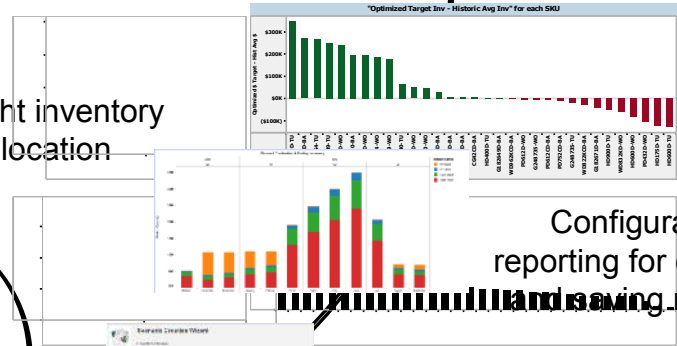
Demand Profiler



Product Flow Optimization

Multi-echelon inventory: The right inventory levels for each SKU at each location

Strategic Stand-Alone



Configurable reporting for creating standard reports



Scenario Creation Wizard

धन्यवाद  
Hindi

多謝  
Traditional Chinese

Grazie  
Italian

ขอบคุณ  
Thai

Gracias  
Spanish

Teşekkür Ederiz

多谢  
Simplified Chinese

Спасибо  
Russian

Obrigado  
Brazilian Portuguese

Thank You

شكراً  
Arabic

Danke  
German

Merci  
French

நன்றி  
Tamil

ありがとうございました  
Japanese

감사합니다