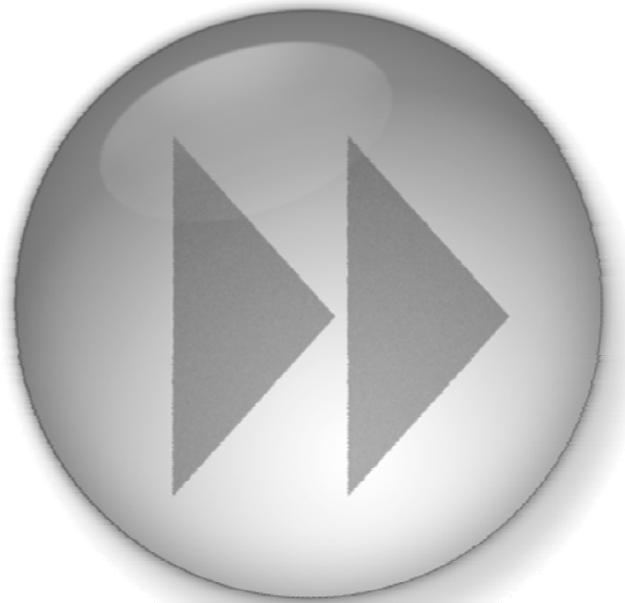


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A Good Time To Reinvent Your Network?

Track 1 Session 2



Supply Chain  Forward.

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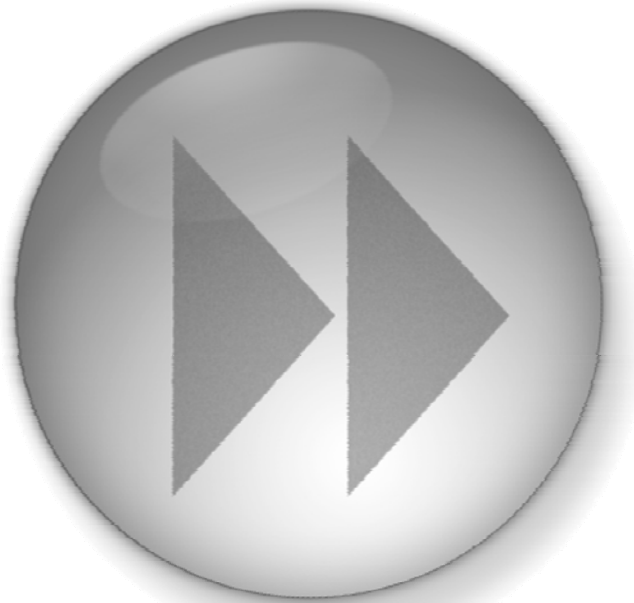
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Abstract

- ▶ **Economic uncertainty, weak consumer demand, global complexities, increasing service demands, restrictive capital markets, and volatile fuel costs are just some of the many challenges that supply chain practitioners face today. Sound familiar? One proven way to reduce cost, improve service and, importantly, position your company for the inevitable economic turnaround, is to objectively and analytically evaluate your supply chain network. This *non-technical, “executive level”* discussion will help you think about whether your company is a good candidate for network redesign, understand a typical approach, what to expect, and lessons learned.**

Agenda

- ▶ **How often does it make sense to review your supply chain network?**
- ▶ **What is the typical process and approach?**
- ▶ **What are the outputs and lessons learned?**
- ▶ **Questions**



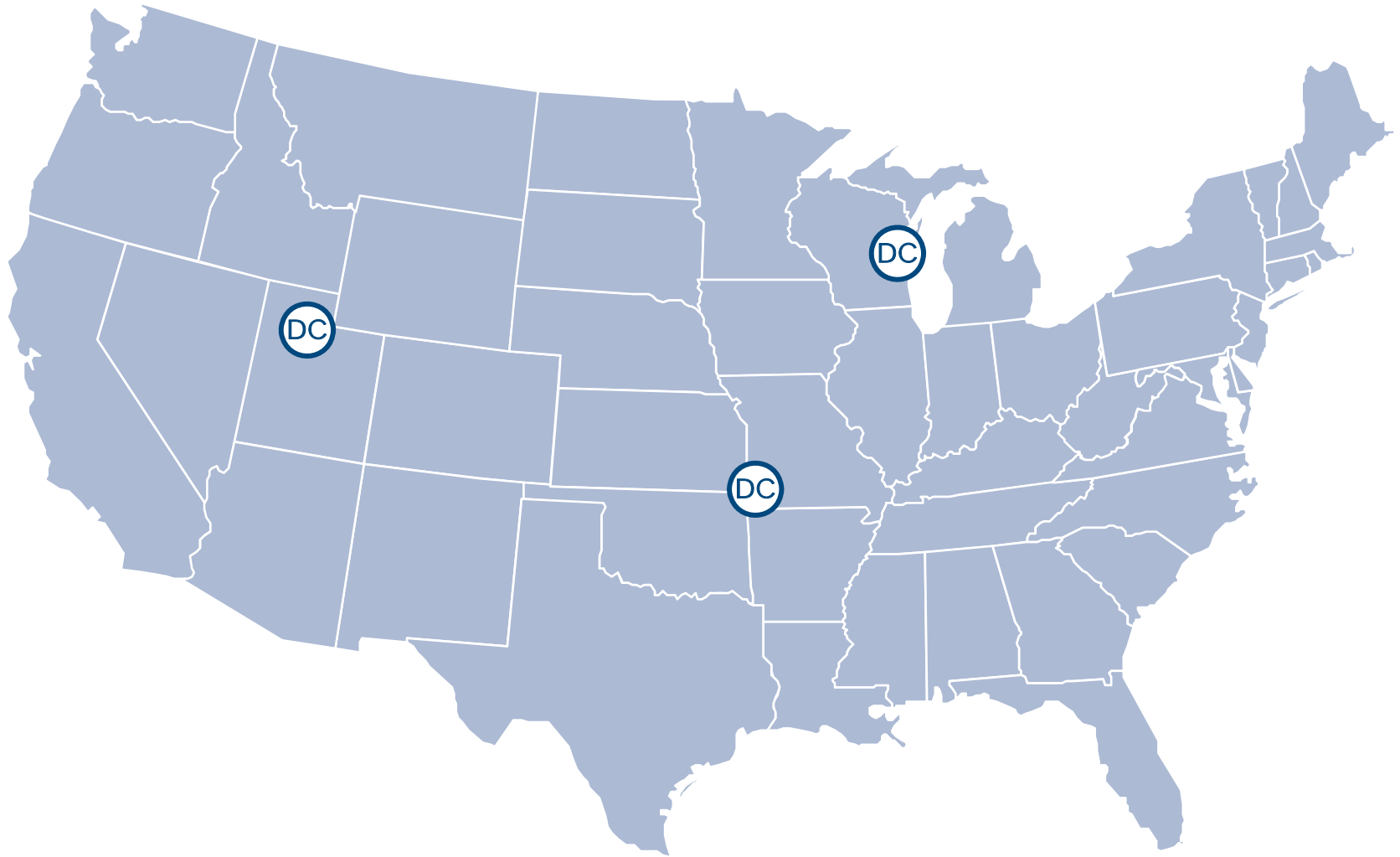
Supply Chain  **Forward.**

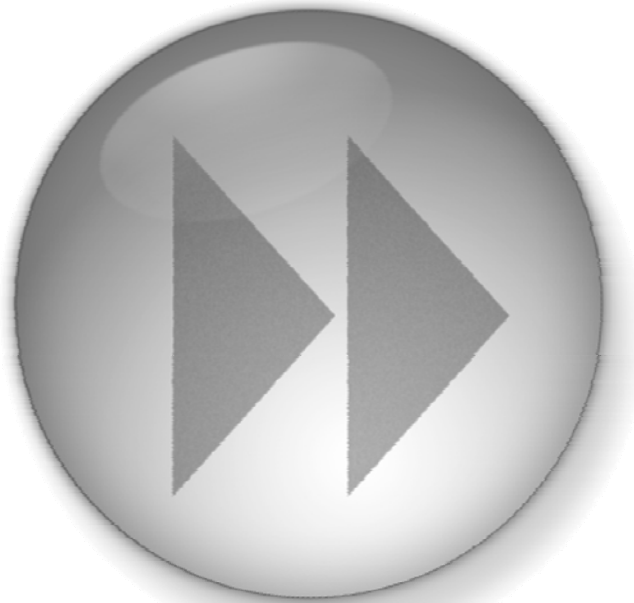
When Does it Make Sense to Evaluate Your Supply Chain Network?

What are Some of the Catalysts?

- ▶ **Change in supply base**
- ▶ **Change in customer base**
- ▶ **Mergers and acquisitions**
- ▶ **Major downsizing**
- ▶ **Fuel/transportation costs**
- ▶ **Labor (off-shoring/near-shoring)**
- ▶ **Customer service requirements**

Illustrative Example

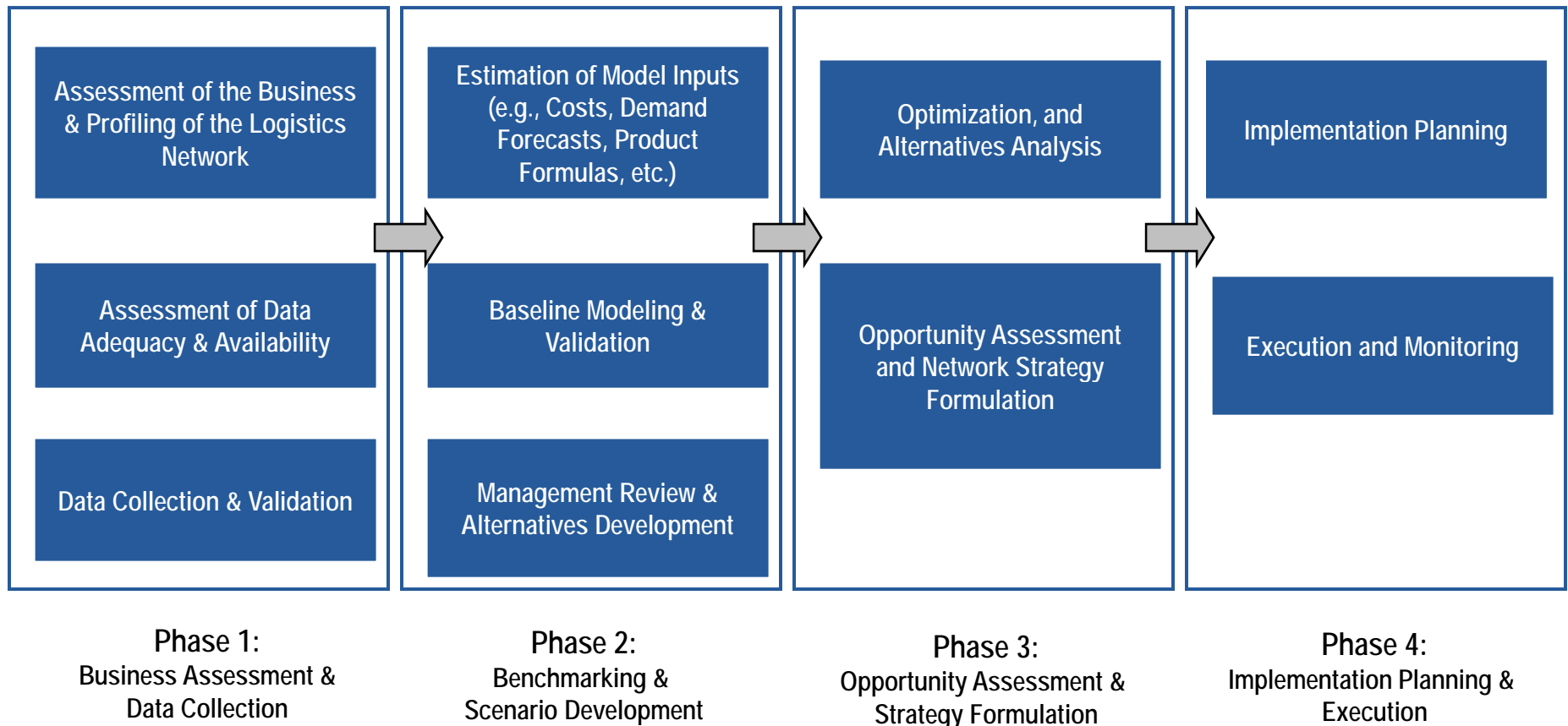




Supply Chain  **Forward.**

Typical Process Approach to Distribution Network Strategy

Typical 4 - Phased Project Approach



This methodology serves as a template and has been successfully adapted to different business settings

Phase 1 - Business Assessment & Data Collection

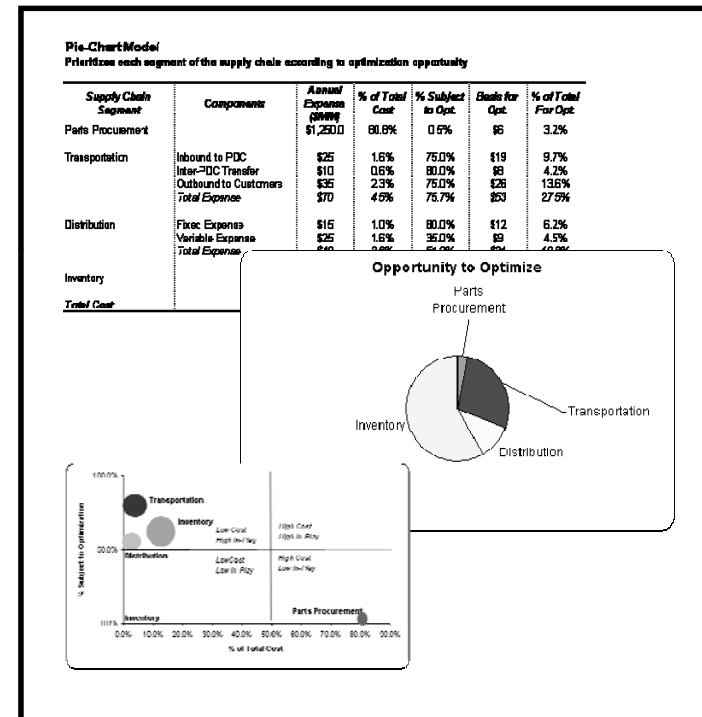
	Key Activities	Deliverables
<p>Assessment of the Business & Profiling of the Logistics Network</p> <p>Assessment of Data Adequacy & Availability</p> <p>Data Collection & Validation</p> <p>Phase 1: Business Assessment & Data Collection</p>	<p>Business Assessment & Profiling <i>...profile the current network strategy, assess supply chain issues, and identify opportunities</i></p> <hr/> <p>Data Adequacy & Availability <i>...assess information needs, submit data requests</i></p> <hr/> <p>Data Collection & Validation <i>...organize and analyze data</i></p>	<ul style="list-style-type: none"> • Supply chain blue-print • Key metrics • Refinement to project scope and objectives <hr/> <ul style="list-style-type: none"> • Data collection approach • Data table templates • Approach for forecast data (e.g., future lanes, candidate locations) <hr/> <ul style="list-style-type: none"> • Project database • Summaries of supply chain operations

Network modeling is a data intensive effort, there are several 'streams' in data collection and analysis, each addressing a specific entity in the supply chain

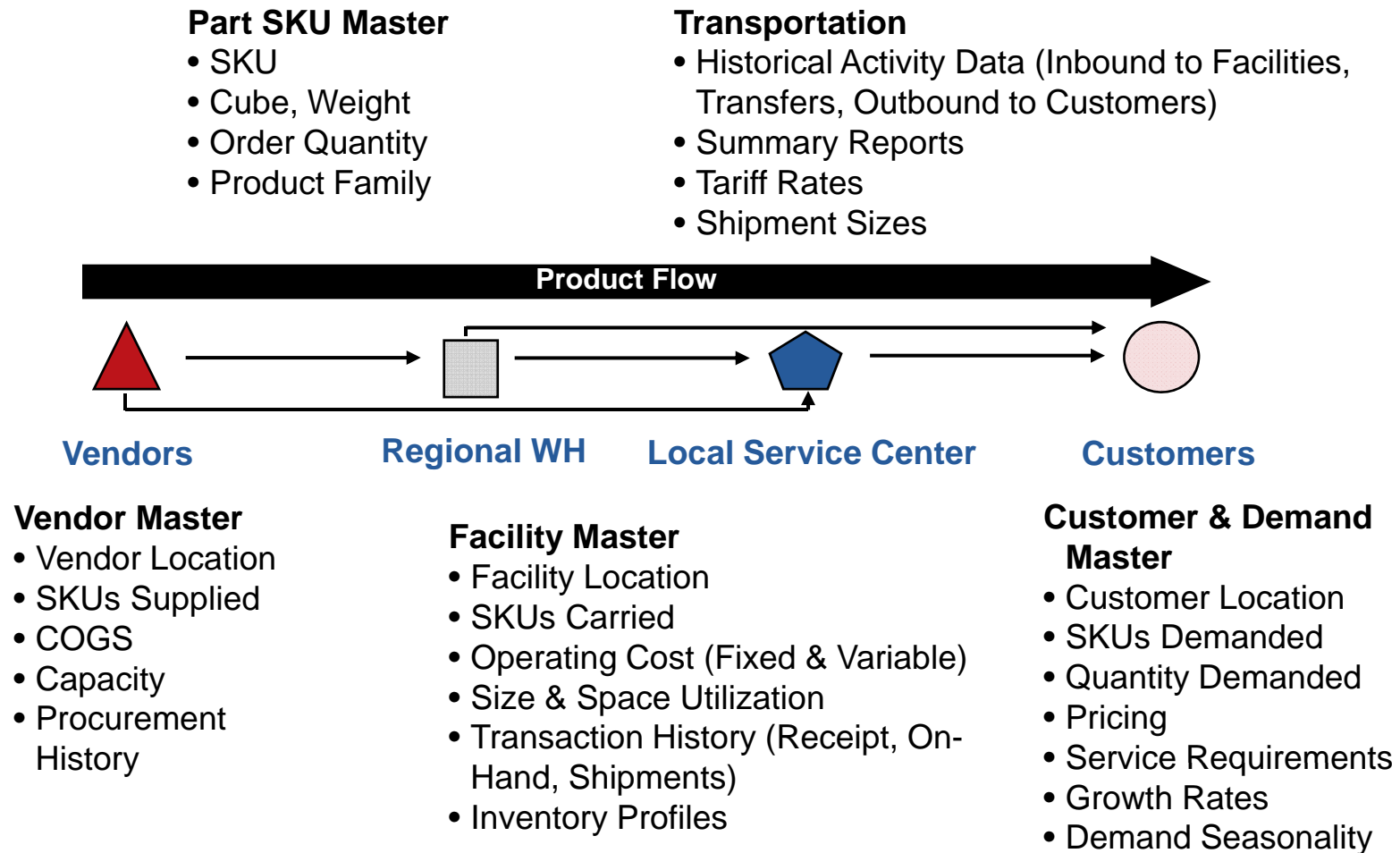
Interviews and Analysis Will Help Determine Key Supply Chain Drivers

► Issues & Opportunities

- ◆ What are the potential benefits to an integrated distribution network?
- ◆ What are the opportunities to consolidate?
- ◆ What is senior leadership's vision for the business?
- ◆ What are the barriers to improvement?
- ◆ What is the quality and availability of supply chain data?
- ◆ Where are the short-term opportunities? How can we accelerate time-to-benefit?



A Structured Request for Transactional Data Will be Requested Early in the Project



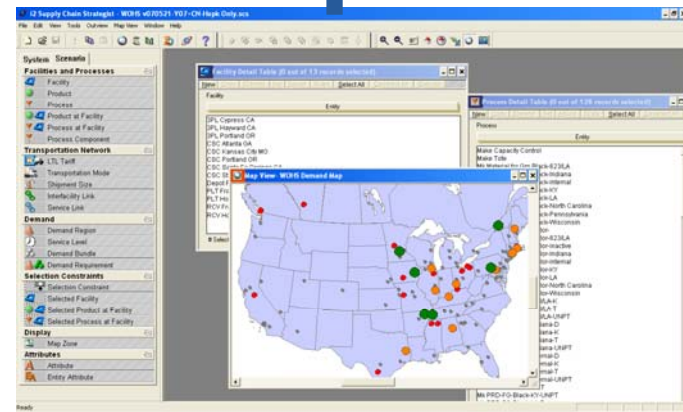
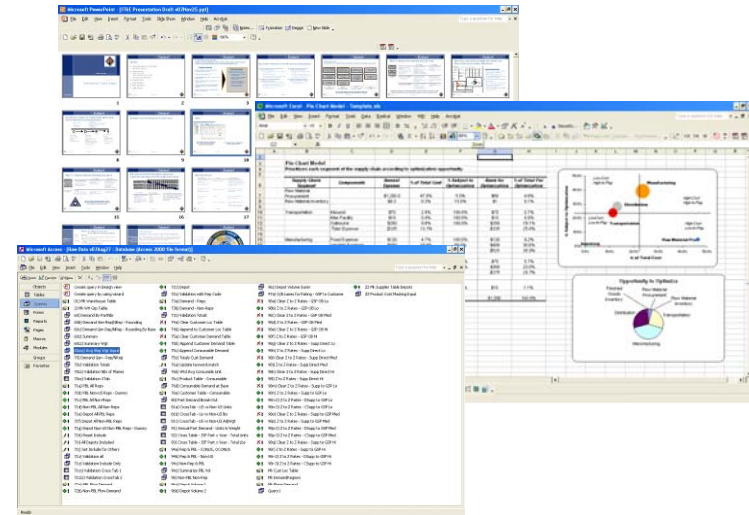
A Combination of Tools Will be Used in a Project

▶ Industry Standard Support Software:

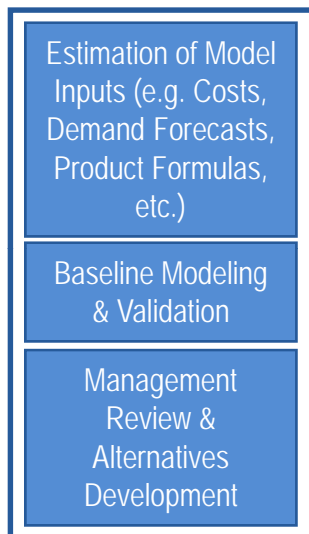
- ◆ Microsoft Access for Database Management
- ◆ Microsoft Excel for Statistical Analysis
- ◆ Microsoft PowerPoint for Presentation

▶ Best-In-Class Optimization Engines. For example:

- ◆ i2 Strategist
- ◆ Logic Tools
- ◆ CAPS



Phase 2 - Benchmarking & Scenario Development



Phase 2:
Benchmarking & Scenario
Development

	Key Activities	Deliverables
Estimate Model Inputs <i>...employ analytical tools ('outside of the network optimization model') to develop cost models</i>	<ul style="list-style-type: none"> Define cost elements for: <ul style="list-style-type: none"> - Transportation - Facility (fixed & variable) - Inventory - Others Develop statistical cost models for forecasting /missing data 	<ul style="list-style-type: none"> Summary report on analysis of data Forecast models
Baseline Modeling & Validation <i>...validate the model and develop the benchmark from which to compare alternatives</i>	<ul style="list-style-type: none"> Structure the network model Develop baseline model Validation: compare baseline output with corporate reports Benchmark: establish basis for comparing scenarios 	<ul style="list-style-type: none"> Validated baseline model Summary report on data analysis approach and baseline results
Management Review & Visioning <i>...review baseline results with steering committee, confirm project goals/objective, and identify scenario alternatives</i>	<ul style="list-style-type: none"> Review & obtain sign-off on baseline results Discuss alternative scenarios with steering committee 	<ul style="list-style-type: none"> Sign-off on analytical approach and baseline results Consensus on scenario alternatives

Other 'Outside the Model' Analytical Techniques are Employed to Develop Model Inputs and to Validate the Baseline

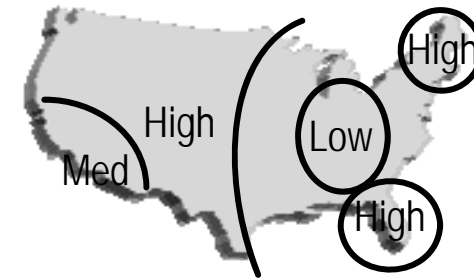
Product Aggregation



Facility Costs & Capacities



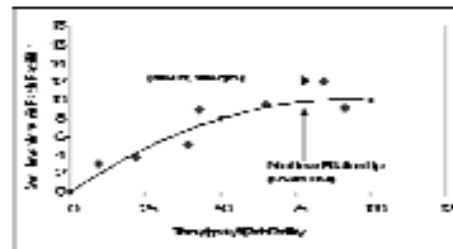
Cost-Based Transportation Regions



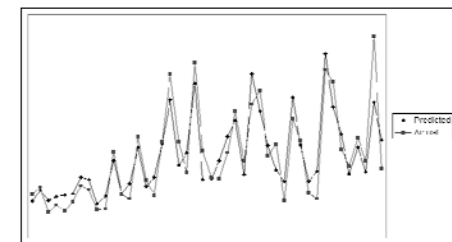
Customer Aggregation



Inventory Impact Analysis



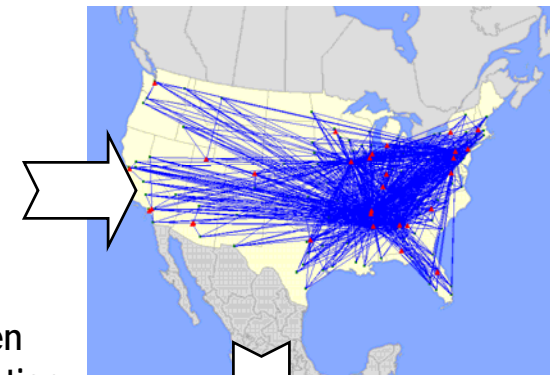
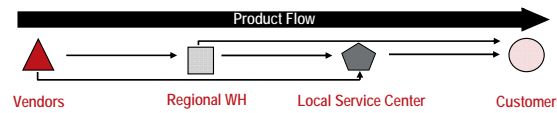
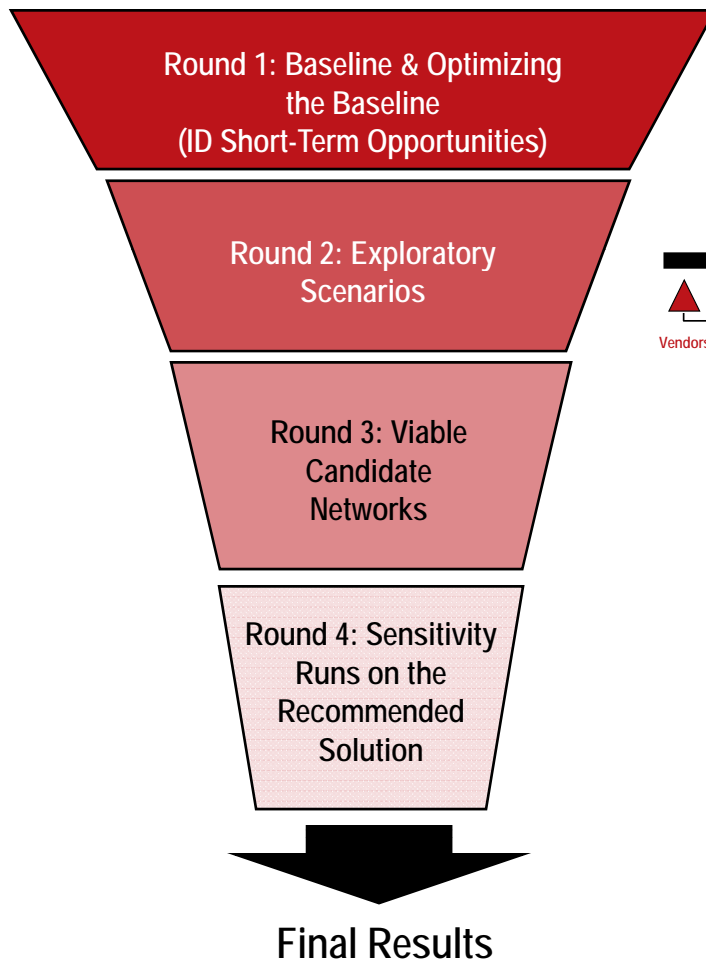
Transportation Cost Forecasting



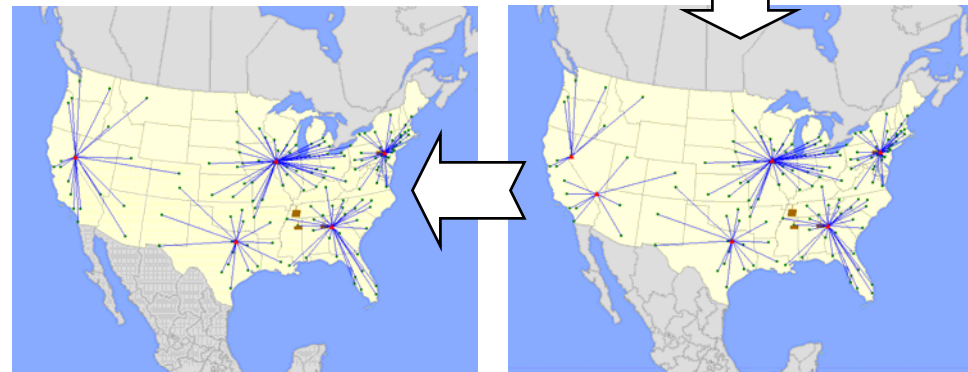
Phase 3 - Opportunity Assessment & Strategy Formulation

	Key Activities	Deliverables
<div style="border: 1px solid blue; padding: 5px; margin-bottom: 5px;"> Optimization, and Alternatives Analysis </div> <div style="border: 1px solid blue; padding: 5px;"> Opportunity Assessment and Network Strategy Formulation </div>	<p>Optimization & Alternatives Analysis <i>...translate the conceptual design and data to specific model scenarios for analysis</i></p>	<ul style="list-style-type: none"> • Scenario analysis report • Sensitivity analysis report • Summary of key findings
<p>Phase 3: Opportunity Assessment & Strategy Formulation</p>	<p>Opportunity Assessment & Strategy Formulation <i>...review results of alternatives analysis and develop network recommendations</i></p>	<ul style="list-style-type: none"> • Summary of potential short-term opportunities • Long-term strategic direction

Translate Vision, Ideas and Data into Specific Model Scenarios for Analysis



An interactive approach is often required to achieve a refined solution



Phase 4 - Implementation Planning & Execution



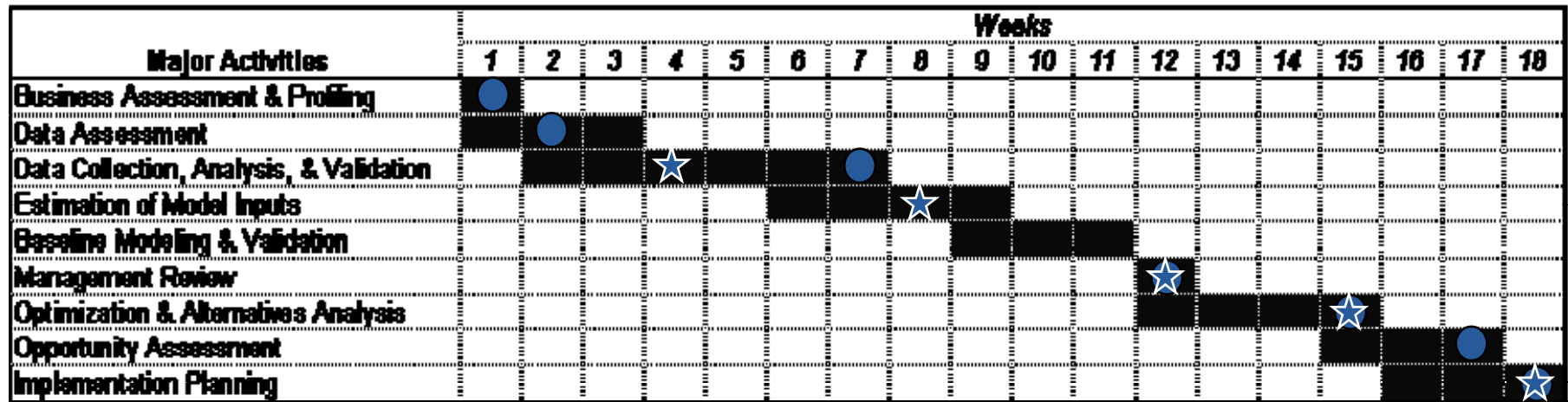
Phase 4:
Implementation Planning
& Execution

	Key Activities	Deliverables
Implementation Planning <i>...develop recommendations and plan for phased-in implementation.</i>	<ul style="list-style-type: none"> • Conduct financial and other analysis to support implementation • Develop roll-out plan 	<ul style="list-style-type: none"> • Executive presentation of key findings, immediate opportunities and strategic recommendations • Considerations for implementation • Implementation guidelines
Execution <i>...mobilize the resources, execute the plan and monitor the supply chain performance</i>	<ul style="list-style-type: none"> • Assist in the roll-out and implementation • Develop key performance metrics 	<ul style="list-style-type: none"> • Pilot project for executing recommendations



The implementation team should have detailed understanding of the strategy and the process

Typical Project Timeline



● Key Milestones

★ Week in Schedule

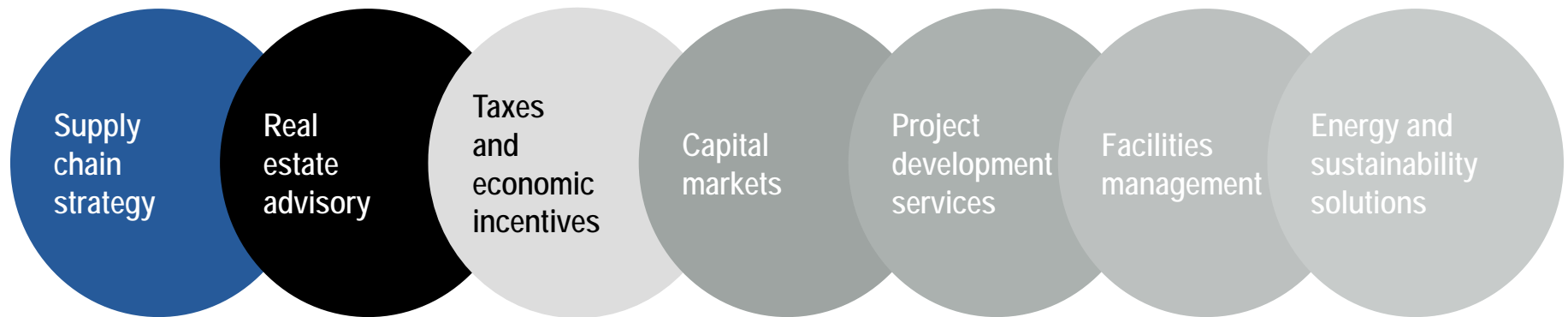
- Interviews & Initial Assessment Week 1
- Submit Data Requests Week 2
- Data Validation Week 7+
- Baseline Review & Visioning Week 12+
- Preliminary Scenario Results Week 15
- Develop Recommendations Week 17
- Present Results Week 18+

The elapsed time for the project can vary/extend out depending on availability and validation of key data.

Regular, formal "check point" meetings and working sessions should be scheduled throughout the project.

An Integrated Approach Works Best

Connecting the strategy through implementation will save time, money and mitigate risk



Typical Corporate Decision Making Process

Supply Chain Network Strategy (C-Suite/Supply Chain Executives)

Objective: Define the optimal number and location of DC's to service the customer at the lowest overall cost with the highest levels of service

- Baseline of “current state” distribution network – cost, service impacts
- Model alternative operating scenarios – “what if” analysis
- Define target areas for deployment at “20,000 foot” level

Implementation/Site Selection (Supply Chain/Subject Matter Specialists)

Objective: Pin the strategy to a more specific location

- Which locations are best within the defined targeted areas
- Detailed review of specific sites at “ground level”
- Analyzing certain location factors in more detail (e.g., labor, incentives)

Execution (Corporate Real Estate Professional/Brokers)

Objective: Negotiate price and complete the real estate deal

- RFP process initiated
- Negotiations initiated
- Deal completed

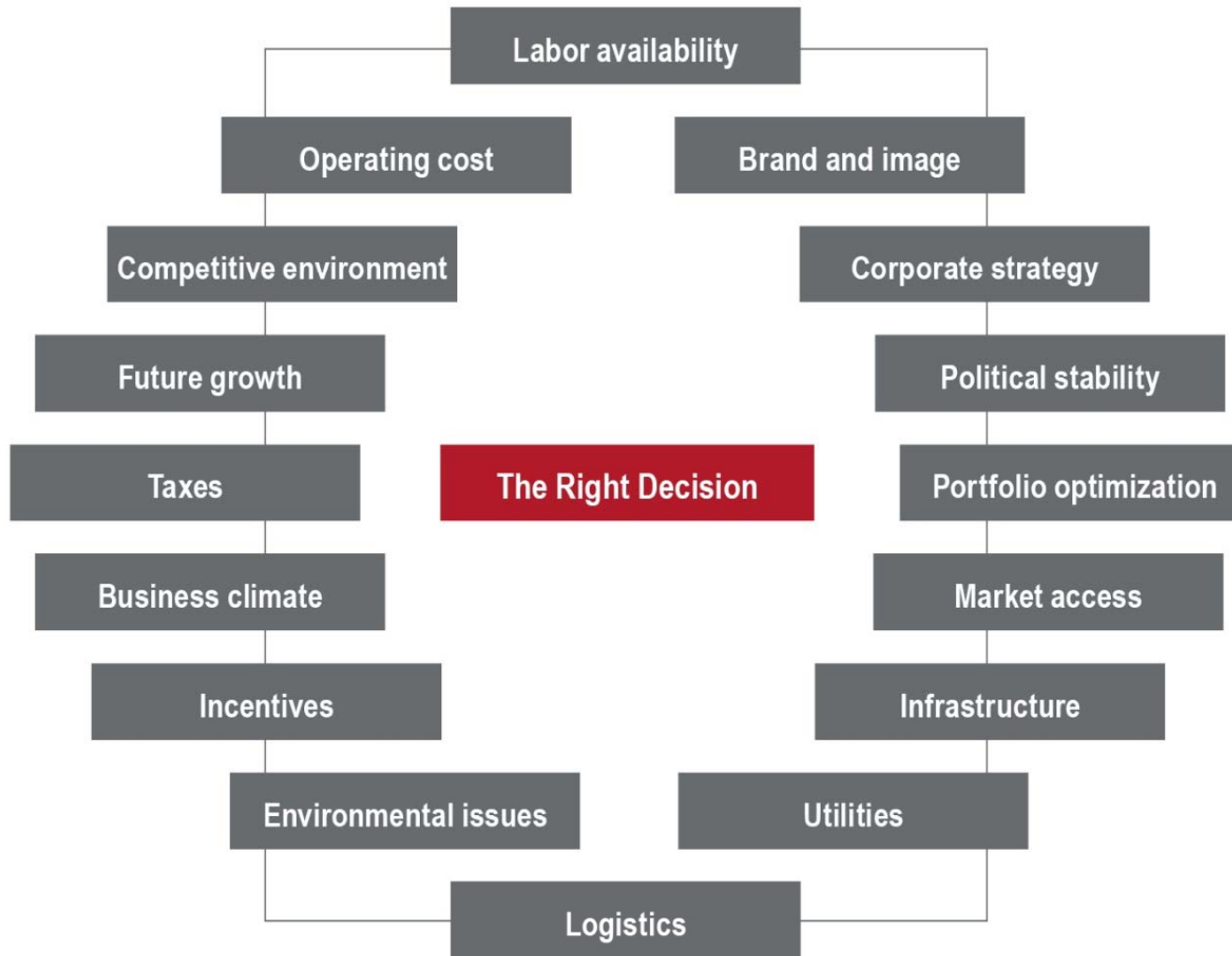
Iterative Process

How can supply chain and real estate work more closely together to create more value?



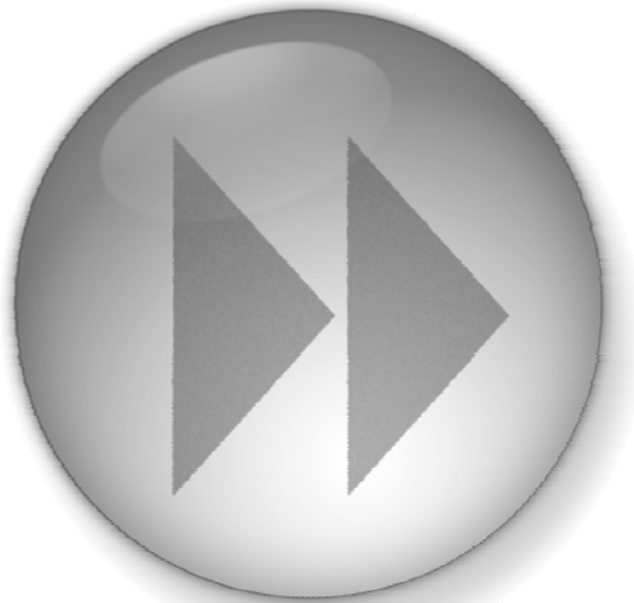
How can we better execute and drive value when pinning the strategy to the ground?

Decision Matrix to Support Implementation



Implementation Evaluation Criteria

Labor	Costs	Operating	Quality of Life	Real Estate
Population	Occupation Salaries	Proximity to Customers	Cost of Living	Inventory Sum
Population Growth	Business Costs	Supplier Proximity	Housing Costs	Vacancy Rate
Net Migration	Per Capita Income	State Tax Burden	Commute Times	Absorption
Occupation Employment	Business Tax Climate	Economic Incentive 'Friendliness'	Culture & Recreation	Cost for Flex R&D Space
Unemployment	Relocation Packages	Legal Fairness	Violent Crime	Existing/ Distressed
Population Age 22-34	Freight/Inventory	Best Places for Business	Property Crime	
Right to Work Environment		Cost of Doing Business	Air Quality	
Potential Competitors		Airport Accessibility	Water Quality	
Proximity to Universities		Proximity to Ports	Physicians Per Capita	
Educational Attainment		Highway Networks	Public Education	



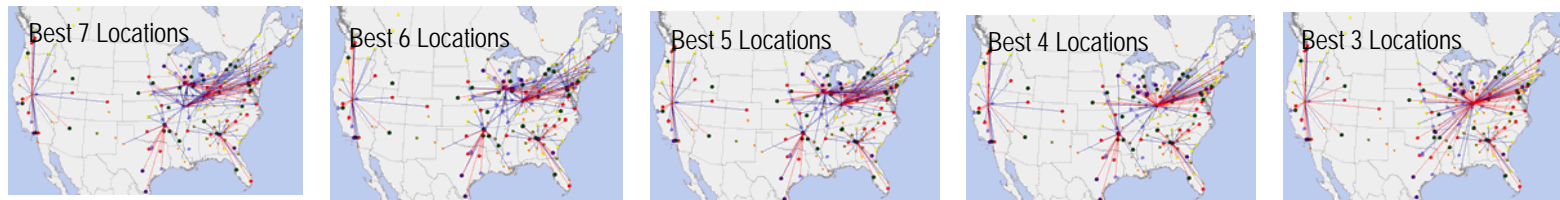
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Typical Outputs and Lessons Learned

Example of Business Questions Addressed in the Course of a Project

- ▶ **What is the potential savings opportunity that could result from re-aligning the existing network, capacities, and business operations?**
- ▶ **What are the impacts to customer service?**
- ▶ **What are the inventory implications?**
- ▶ **What is the optimal number and location of facilities required to fulfill customer service requirements?**
- ▶ **What is the potential impact of sharing logistics facilities that have historically operated as separate business units?**
- ▶ **Should any existing location be expanded, contracted, moved or closed?**
- ▶ **What should be the size/mission of each logistics facility?**
- ▶ **What new facility types and locations should be considered (if any)?**

Example Output



Cost & Service Summary

Category	Baseline	7 DC	6 DC	5 DC	4 DC	3 DC
WH Handling	\$45.0	\$41.1	\$40.5	\$39.7	\$39.3	\$39.4
Transfer Freight	\$14.0	\$21.1	\$21.5	\$20.4	\$22.9	\$21.4
Customer Collect	\$43.2	\$32.0	\$31.9	\$32.4	\$32.2	\$35.0
Customer Delivery	\$30.1	\$20.5	\$20.4	\$21.3	\$21.4	\$22.7
Customer Prepaid	\$28.5	\$19.6	\$19.5	\$20.2	\$20.2	\$23.9
Total Freight	\$115.9	\$93.3	\$93.4	\$94.3	\$96.7	\$103.0
Inventory	\$126.7	\$125.5	\$125.2	\$124.9	\$124.5	\$124.1
Total SC Cost	\$287.6	\$259.8	\$259.0	\$258.9	\$260.5	\$266.5
Savings Opportunity	\$0.0	\$27.8	\$28.6	\$28.7	\$27.1	\$21.1
Cost Per Pound (Excluding Inventory)	\$0.0860	\$0.0718	\$0.0716	\$0.0717	\$0.0727	\$0.0762
Key Accounts (Weighted Miles)	553 Mi.	453 Mi.	452 Mi.	455 Mi.	458 Mi.	515 Mi.
Regular Accounts (Weighted Miles)	733 Mi.	589 Mi.	580 Mi.	601 Mi.	602 Mi.	619 Mi.
WH Transfers (Weighted Miles)	396 Mi.	619 Mi.	632 Mi.	608 Mi.	663 Mi.	609 Mi.

Locations	7	6	5	4	3
Pendergrass, GA					
Harrisburg, PA					
Plainfield, IN					
Reno, NV					
Rochelle, IL					
Rogers, AR					
St. Louis, MO					

- Comparison for 3 and 5 DC scenario summary using 2008 baseline data
- Potential for over \$25MM in network-wide supply chain savings
- Three regions across the different greenfield scenarios were consistent in the model (Atlanta, Indianapolis, Reno)
- Modeled various scenarios which resulted in an optimal range of 3-7 DC locations
- Model results indicate a 5 DC scenario to be optimal

Wrap-Up - Lessons Learned

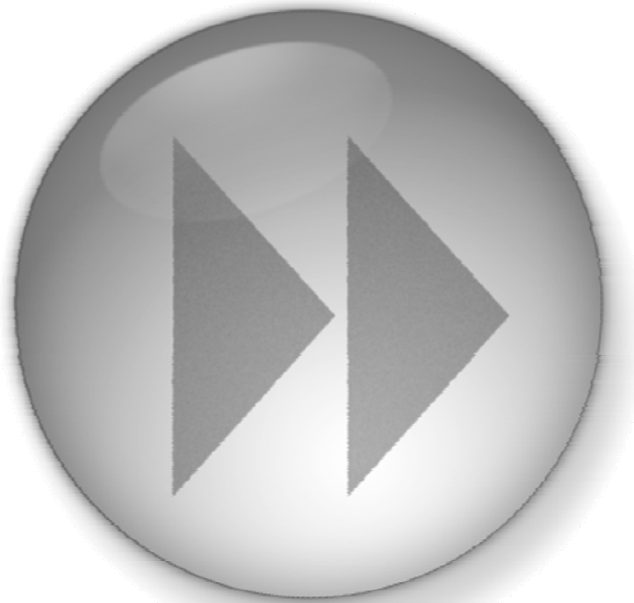
- ▶ **Look for those catalysts that might have an impact on your supply chain network:**
 - ◆ **Changes in supply or customer base**
 - ◆ **Merger or acquisition (or major downsizing)**
 - ◆ **Fuel prices/Labor**
 - ◆ **Customer service requirements**
- ▶ **Work to develop a common understanding of the business**
 - ◆ **How should the supply chain adapt to future of the business?**
 - ◆ **Management and cross functional operations input, as well as buy-in to the process, are essential.**

Wrap-Up - Lessons Learned

- ▶ **Require discipline in the collection of data**
 - ◆ **The network modeling is a data intensive exercise and the results are only as good as the data inputs and assumptions.**
 - ◆ **Involving key management personnel is essential.**
- ▶ **Communication is key**
 - ◆ **Scheduled update sessions**
 - ◆ **Regular communications**
 - ◆ **Formal checkpoint meetings**

Wrap-Up - Lessons Learned

- ▶ **Be open to alternative ways to operate the business**
 - ◆ Network strategy involves evaluating new and different “what-if” scenarios that will challenge current thinking
 - ◆ Identify and factor into the decision supply chain elements that cannot easily be quantified in a model, such as risk and flexibility
- ▶ **Don’t be surprised with then “C-Suite” gets involved**
- ▶ **Think big, act “small”**
 - ◆ Look at network on a strategic level
 - ◆ Focus implementation efforts on regional basis
- ▶ **An integrated approach works best**
 - ◆ Be careful what you ask for!
 - ◆ Think of the network strategy and the implementation as an iterative process



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Questions?