

Supply Chain **Reset**



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OfficeMax Optimizes Its Distribution Network Strategy

Track 5 Session 7



Supply Chain **Reset**



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Abstract

- **In 2008, with the onset of the recession, OfficeMax recognized it needed to reset their supply chain in order to improve product availability and inventory turns while dramatically reducing operating expenses.**
- **A distribution network optimization study was performed to drive network design innovation and position the company for long term profitable growth. This is the story of how this famous retailer sharpened their pencil during the study and the significant results that were achieved.**

Agenda

Topic

OfficeMax : Background Information

Distribution Network Strategy

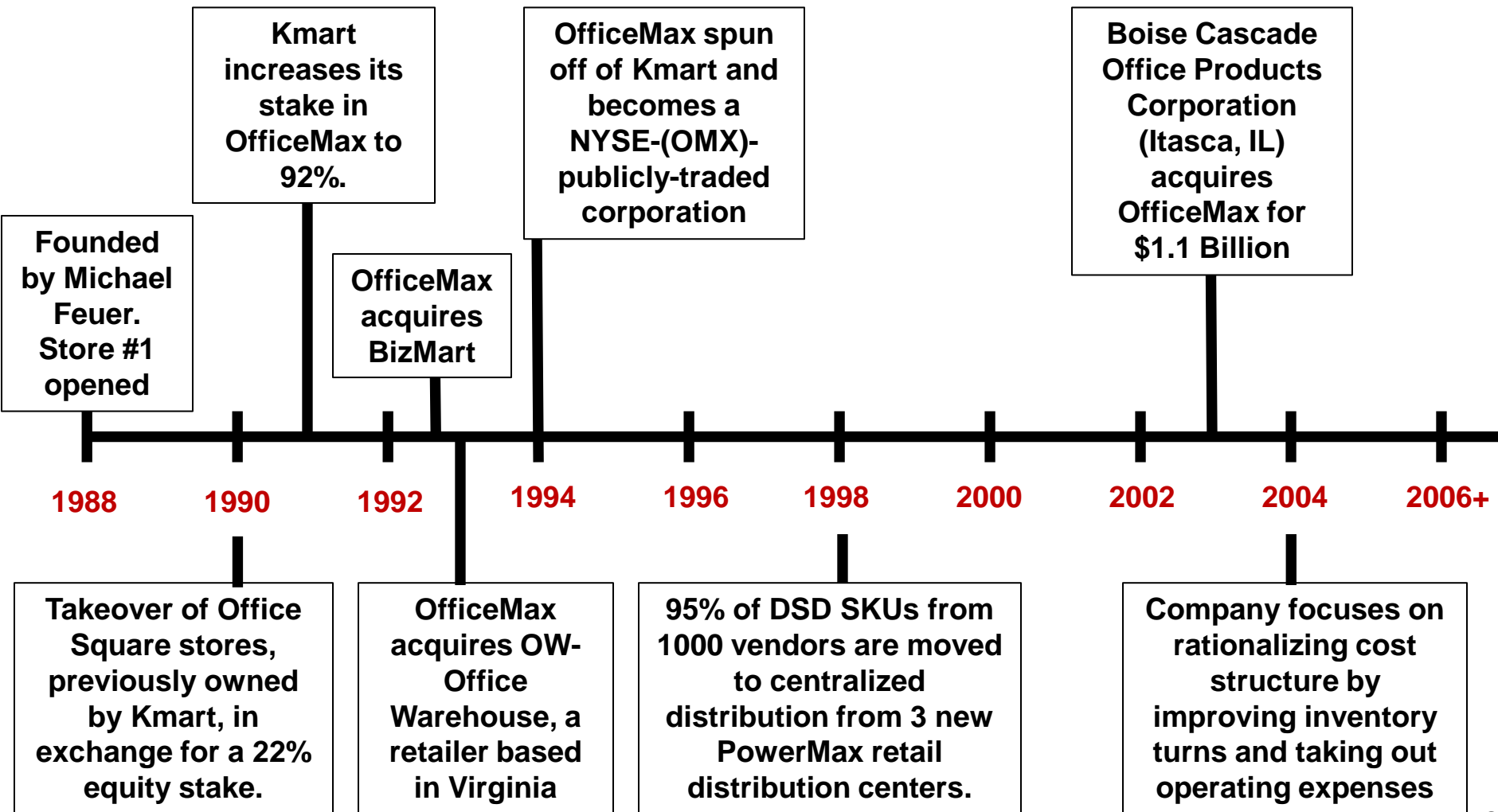
Key Takeaways



OfficeMax®

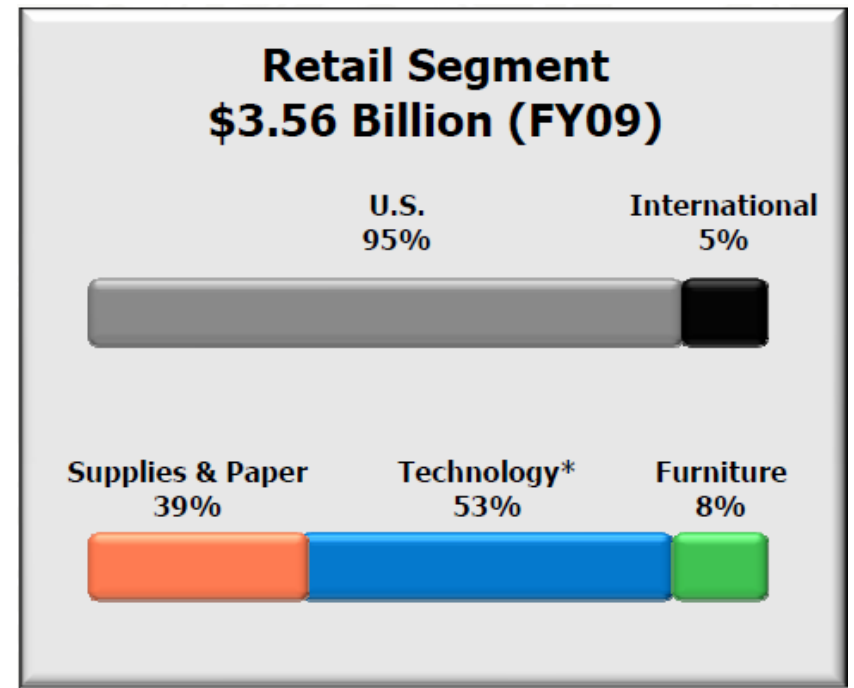
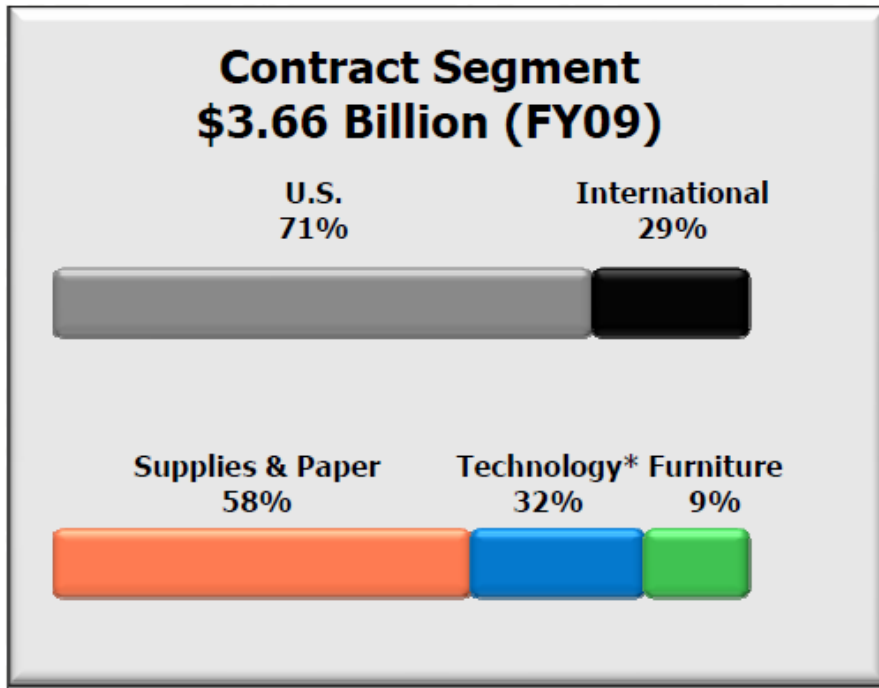
- **OfficeMax (NYSE: OMX) is an office supplies retailer / wholesaler founded in 1988 and headquartered in Naperville, Illinois.**
- **3rd largest office supplies retailer in the USA, behind Staples and Office Depot.**
- **Fiscal 2009 sales of \$7.2 Billion**
 - **\$3.66 Billion Contract Sales (71% U.S.)**
 - **\$3.55 Billion Retail Sales (95% U.S.)**
- **1001 stores in U.S. and Mexico**
- **35,000 associates**

OfficeMax: A Brief Timeline



OfficeMax Today

2009 Sales were split 50% retail and 50% contract sales



33,000+ SKUs



Retail Stores

- **923 Superstores in U.S.**
- **78 stores in Mexico**
- **Stores range in size from 15,000 to 41,000 sq. ft.**
- **Typical superstore stocks 8,000 SKUs + 25,000 available by catalogue**



PowerMax Distribution Centers

- In 1998, OfficeMax built three 600,000 square foot PowerMax warehouses:
 - Hazelton, PA
 - McCalla, AL
 - Las Vegas, NV
- Eliminated 95% of DSD SKUs in favor of centralized distribution
- Improved inventory turnover by an estimated \$400 Million



Customer Fulfillment Centers

- In 2008, OfficeMax operated a mix of 27 owned and leased CFC distribution facilities across the U.S. totalling 3.2 Million Sq. Ft.
- Infrastructure required to support next day service proposition to our national contract customer base

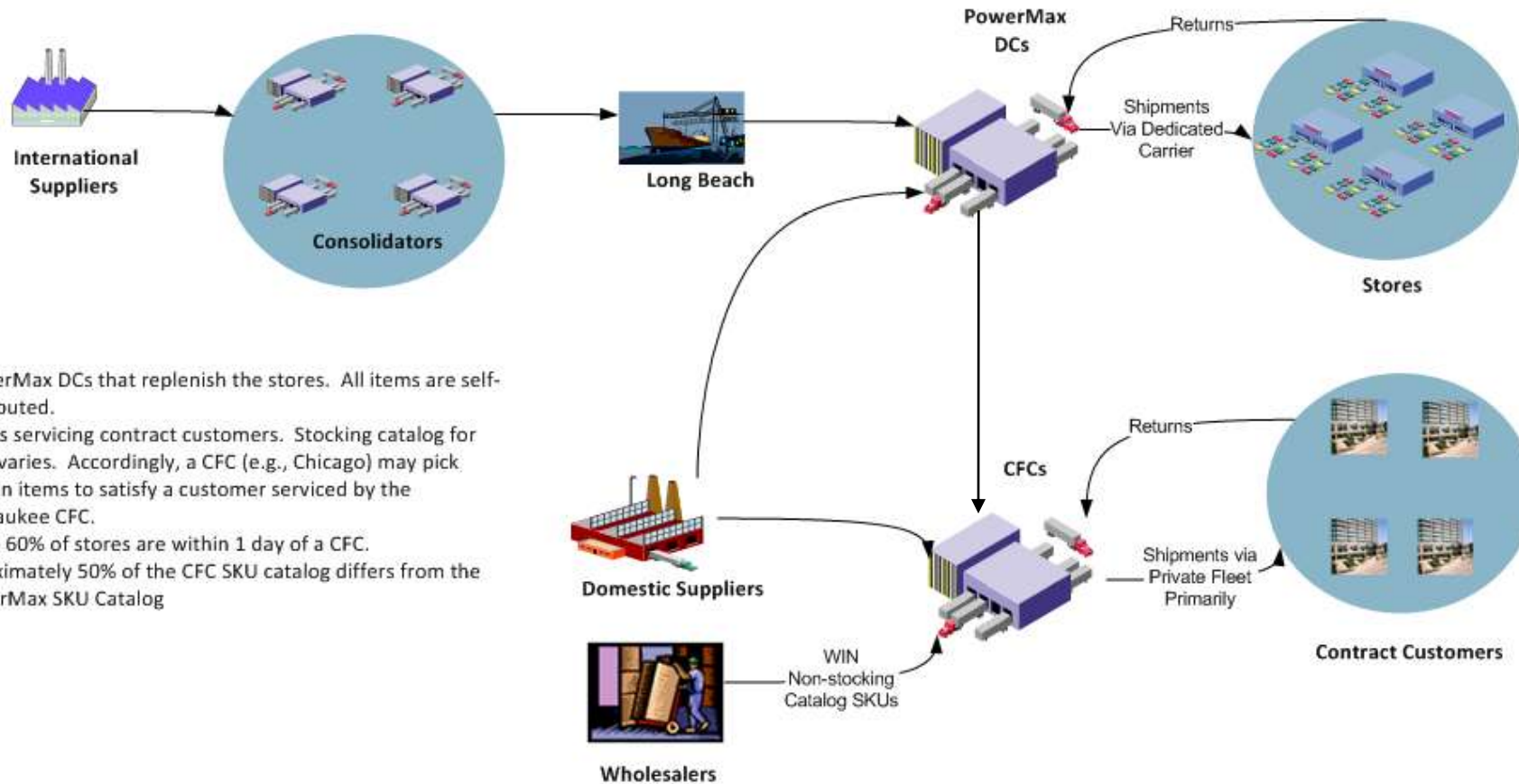


Two Independent Supply Chains

- **The retail and contract sides of the business evolved as 2 separate supply chains**
 - **Contract customers serviced from 250 mile radius for next day ground service through private fleet of delivery trucks**
 - **Retail stores serviced from 3 facilities as far away as 750 miles through dedicated contract carrier**
 - **Small overlap in the SKUs distributed through the retail and contract network**
 - **Contract and retail fulfillment operations run on different software applications**



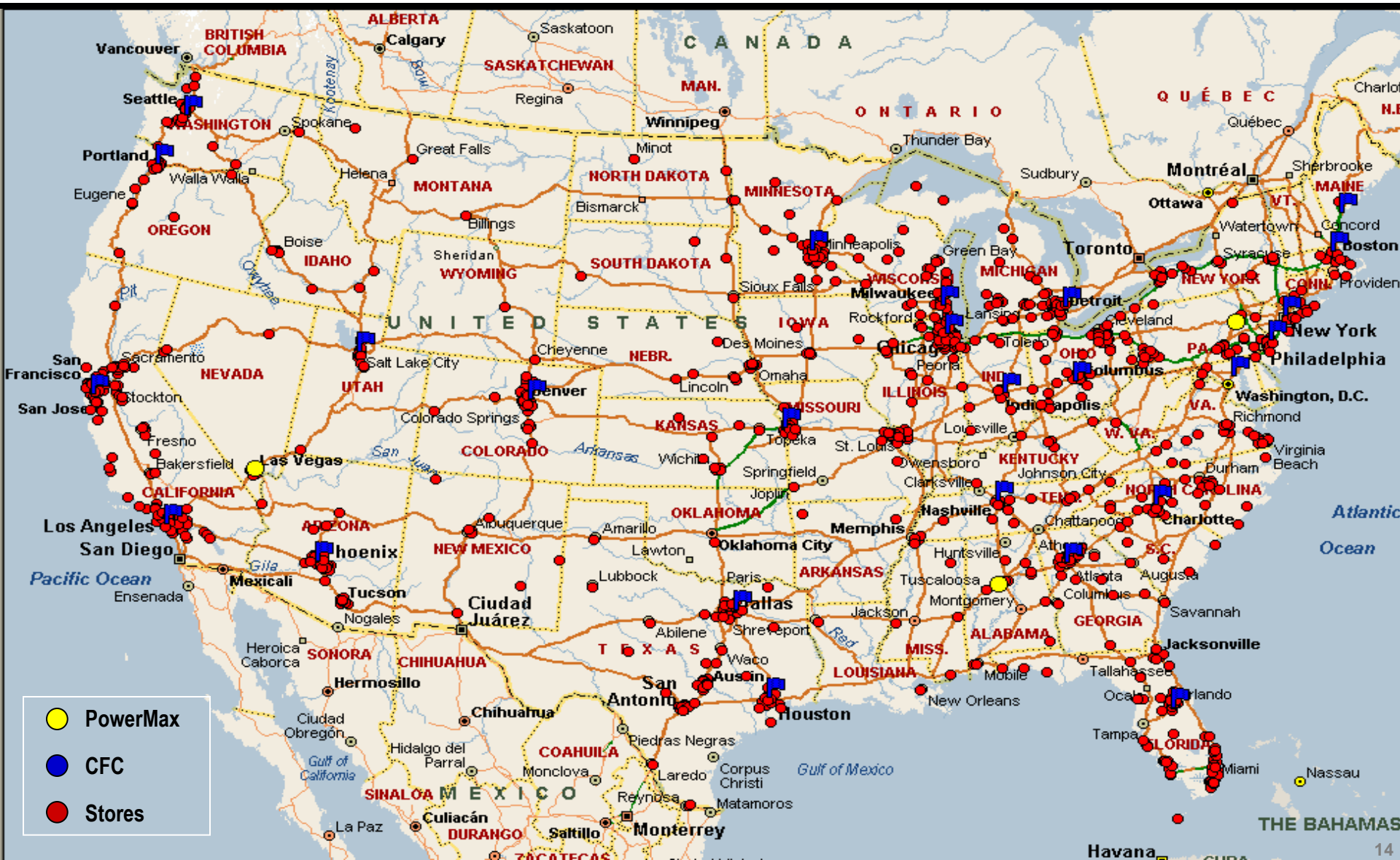
Supply Chain Schematic



Notes:

- 1.) 3 PowerMax DCs that replenish the stores. All items are self-distributed.
- 2.) 27 CFCs servicing contract customers. Stocking catalog for CFCs varies. Accordingly, a CFC (e.g., Chicago) may pick certain items to satisfy a customer serviced by the Milwaukee CFC.
- 3.) 50% to 60% of stores are within 1 day of a CFC.
- 4.) Approximately 50% of the CFC SKU catalog differs from the PowerMax SKU Catalog

OfficeMax U.S. Network in 2008

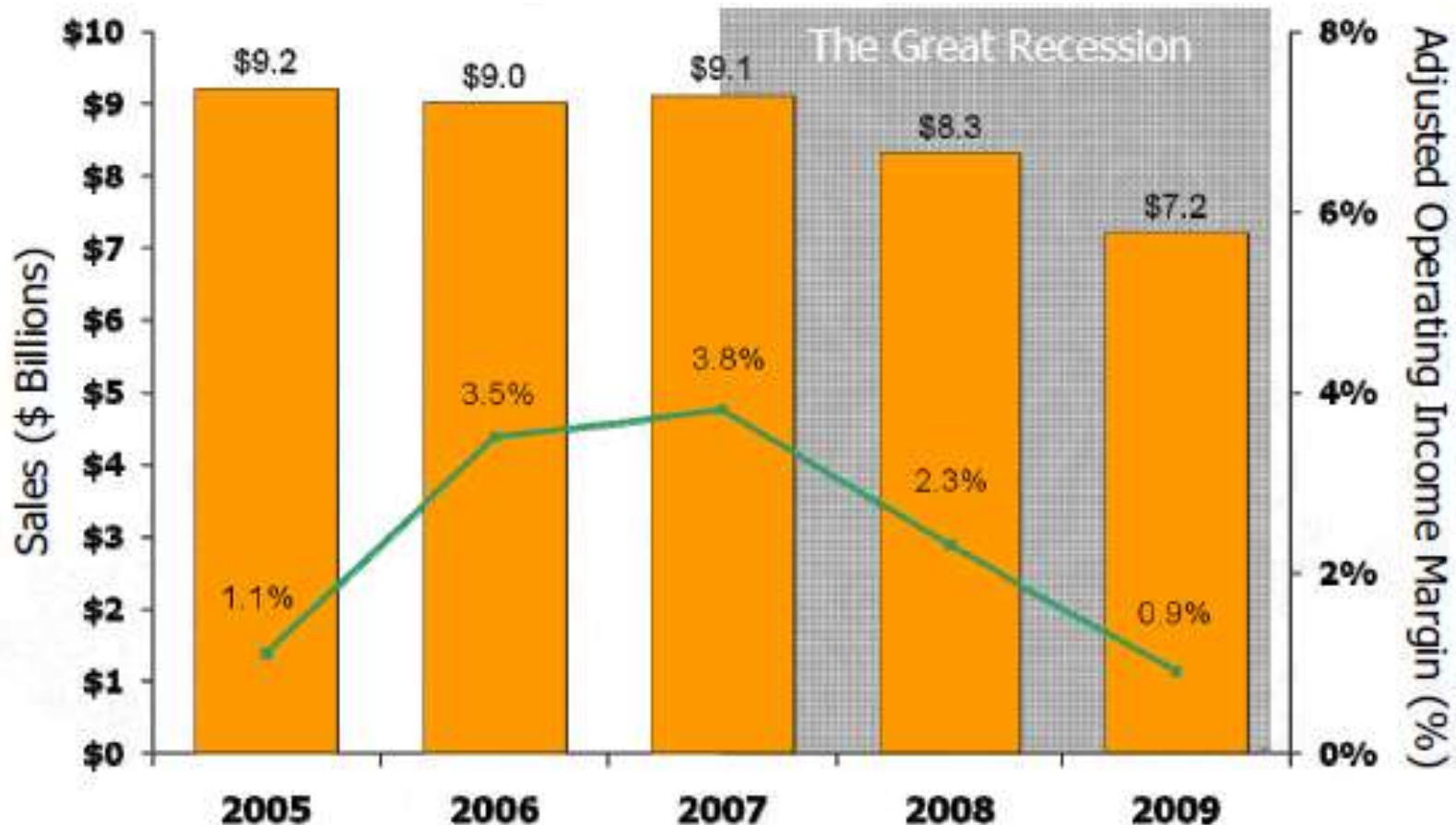


2nd Tier Distribution

- **OfficeMax partners with United Stationers to supply 25,000 SKUs not stocked in our distribution network**
- **United Stationers has a nation-wide distribution network that provides a 3 hour service level to 95% of the U.S. population which enables OfficeMax to transparently service catalogue SKUs to customers**

Drivers for Change

- The current recession has had a significant impact on all office supplies companies including OfficeMax.



The Recession's Impact on OfficeMax

- In 2007, OfficeMax understood that downward economic trends would have a significant impact on our industry
 - Since then, OfficeMax sales revenue has declined by ~\$1 Billion per annum
 - OfficeMax needed to right size our distribution network to maintain operating margins but with two fundamental constraints
 - No change in customer service levels
 - No major capital investments
 - No sale of owned assets for the sake of generating cash flow

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Key Takeaways

Distribution Network Strategy Study

- **OfficeMax chose to partner with a consulting firm to develop a network strategy:**
 - **A previous study had been commissioned 3 years earlier with limited results that were never implemented as the recommendations were deemed to be overly academic**
 - **An evaluation of 13 supply chain consulting firms was undertaken over an extended time period until we chose a highly qualified and experienced consulting services partner**

Project Structure & Objectives



Phase	Outlook	Definition
1 – Crawl	Short Term	Cost reduction opportunities
2 – Walk	Medium Term	Improve the overall use of our existing distribution infrastructure assets
3 - Run	Long Term	Integrate our retail and contract supply chains to drive improved profitability

Project Schedule

Project Schedule	Week																										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Supply Chain Network Optimization	[Black Bar]																										
Step 1 - Data Gathering & Validation	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]																			
Interviews & Data Gathering	[Red]	[Red]	[Red]																								
Data Analysis & Construction of Dataset			[Red]	[Red]	[Red]	[Red]	[Red]																				
Review Dataset & Formulate Scenarios							[Red]	[Red]																			
Step 2 – Modeling									[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]
Construct Baseline to Design Year									[Red]	[Red]	[Red]	[Red]	[Red]	[Red]													
Analyze Selected Scenarios															[Red]	[Red]	[Red]	[Red]	[Red]	[Red]	[Red]	[Red]					
Develop Analysis & Present																						[Red]	[Red]				
Make Revisions, as necessary																							[Red]				
Step 3 – Strategy Reporting																								[Green]	[Green]	[Green]	[Green]
Detailed Analysis of Selected Hybrids																							[Red]				
Prepare & Present Final Presentation																									[Red]		
Further Refinement, as necessary																										[Red]	

This Project Was 100% on Budget and Schedule

Data Gathering

This Type of Project Requires an Immense Amount of Data

- Data gathering - 52 weeks of accurate operational and financial data were required for the study

Item/ Master File



- SKU number, Description, Family, COO
- Unit Movement and Inventory History
- Unit of Measure, Length, Width, Height, Weight
- Material Handling Characteristics
- Cost of Goods

Transportation File



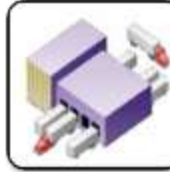
- Inbound Transportation History
- Outbound Transportation History
- Inter-Facility Transfer History
- Tariff Rates
- Shipment Cost Details

Vendor Master File



- Vendor Location
- SKUS Supplied
- Purchase Order History
- Inbound Freight Charges / Terms

Distribution Facility File



- Distribution Center Locations With Lease/Own Details
- Storage Location Master File
- Capacity Constraints (Storage, Throughput)
- Labor Crewing / Productivity

Customer Master File



- Customer & Store Locations
- Order / Invoice History & Order Detail
- Service Requirements
- Growth Projections

Financial Accounting Files



- Operating Expenses at GL Level (Budget, Actual YTD)
- Depreciation Rates & Schedule, Tax Rates, Project Accounting Methodology (IRR, ROI, NPV, EVA)
- Hurdle Rates

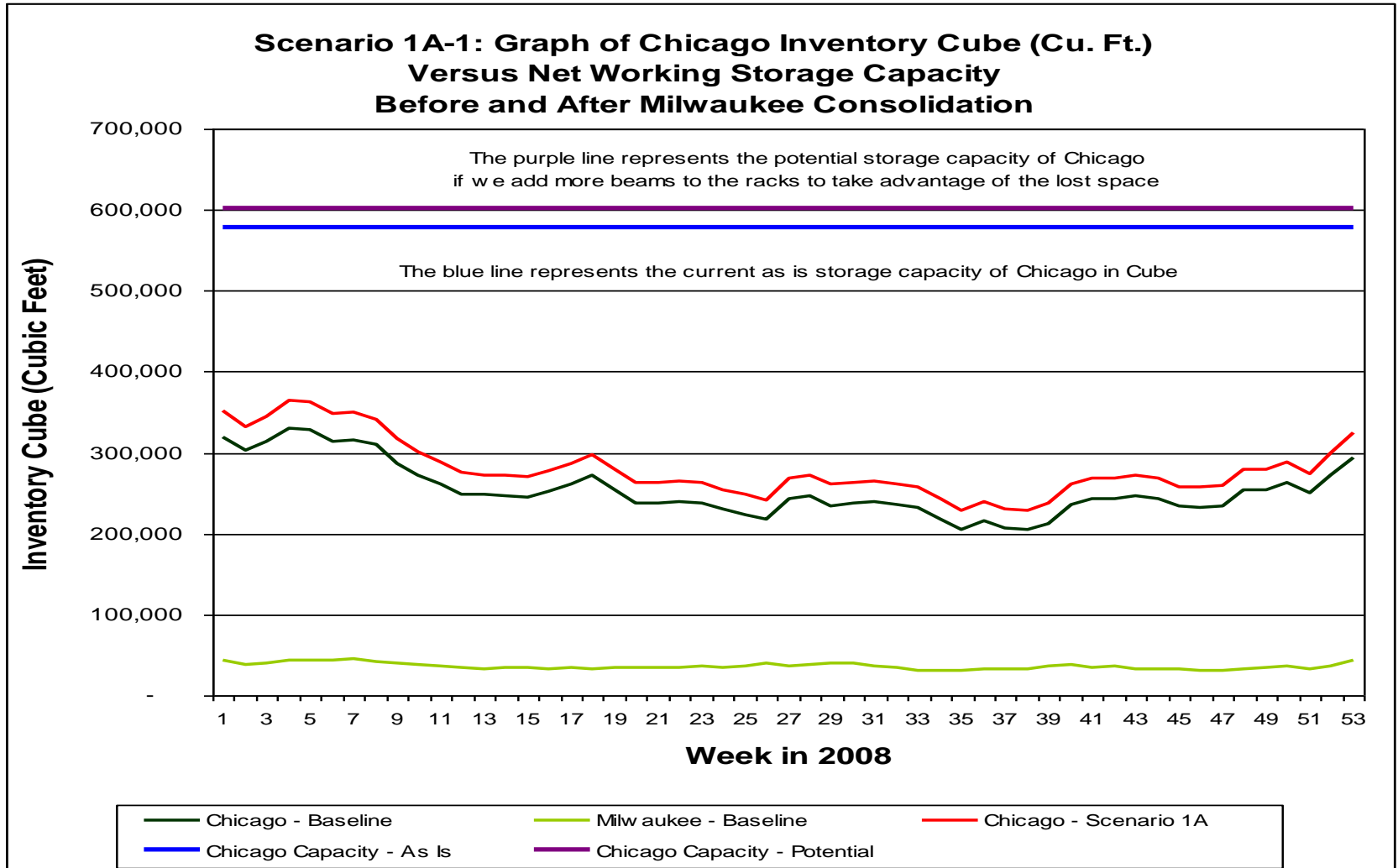
Approach & Assumptions

- **30 distribution centers were measured for capacity constraints:**
 - **Physical storage capacity expressed in cube**
 - **Pick Facings**
 - **Dock Capacity, etc.**
 - **52 week inventory curve**
 - **The utilization rate for each facility was identified to develop feasible consolidation opportunities**
- **Results:**
 - **We learned that many of our facilities were under-capacity “as is” and that definite opportunities existed to consolidate CFC infrastructure without major capital investment requirements**



E.g. Inventory Versus Capacity

Consolidation Opportunities Required Facility Capacity Analysis



Approach & Assumptions

- **OfficeMax took a unique approach for this project**
 - Rather than use an off-the-shelf network optimization software, a custom **Econometric Modeling Tool (EMT)** was utilized
- **Why?**
 - OfficeMax is a publically traded company with strict accounting protocols for financial review – **i.e. no “black box” numbers**
 - Any network strategy decisions require a thorough and detailed after-tax cash flow financial analysis rolled up into an EVA summary including:
 - Operating expenses (at the GL level)
 - Inventory assets
 - Capital investment requirements
 - One time expenses
 - Cost of capital

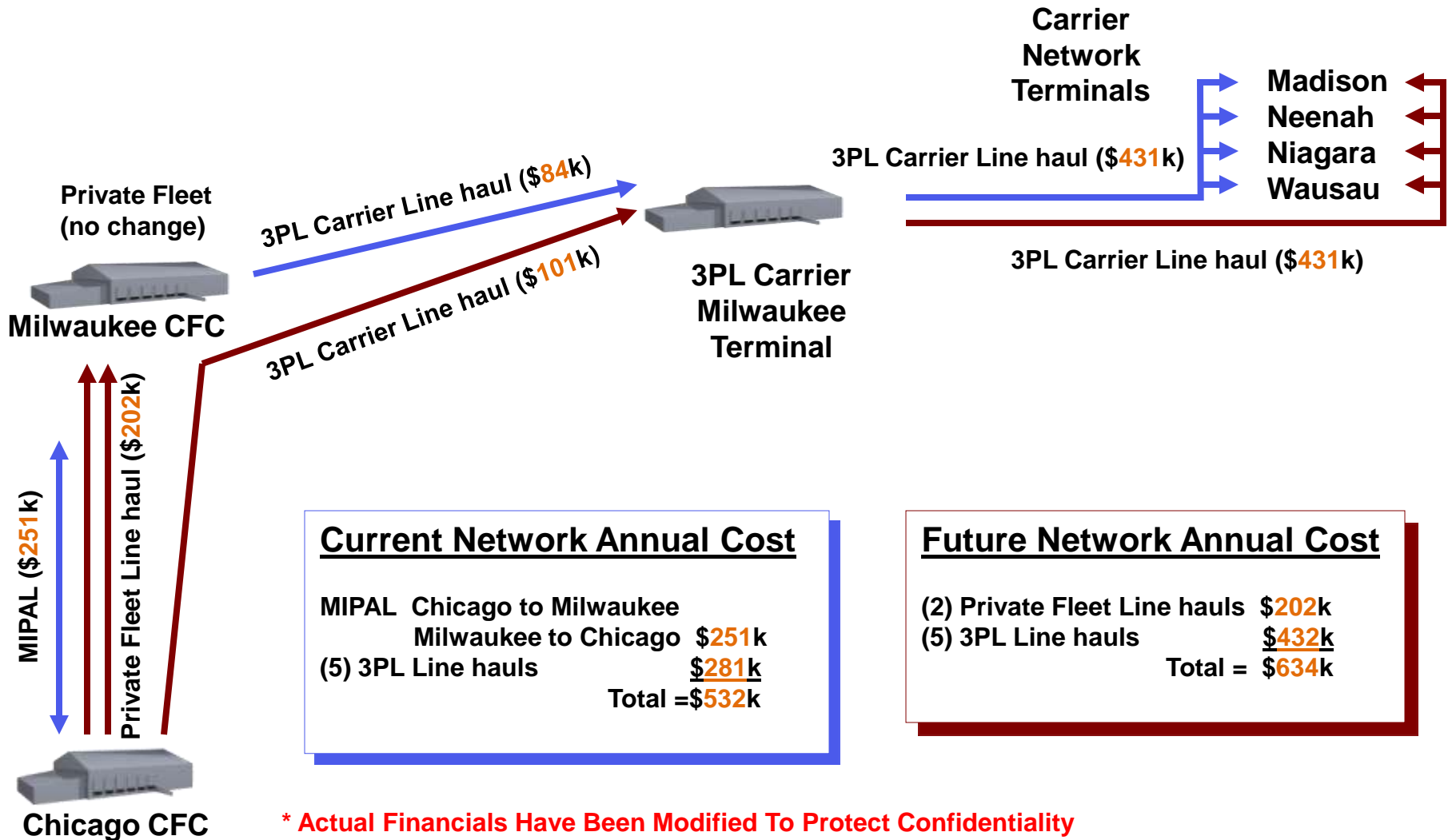
Phase 1 - Crawl



- Evaluate short term cost reductions to maintain operating margin with no capital investments.
- 5 scenarios evaluated:
 - Facility closures / consolidations
 - Shifting customers within the CFC network
 - Cross docking strategies for paper products which are low margin / high weight / fast velocity

Transportation Analytics

Each Scenario Involved Detailed Transportation Assessments(*)



UPS Freight Zones Were Evaluated



UPS Transit



UPS Freight Zone

E.g. Econometric Modeling Tool (EMT)

Conforms to the EVA Accounting Approach (*)

* Actual Financials Have Been Modified To Protect Confidentiality

Cash Flow Summary						
Scenario 1A-3 : Consolidate DC 12 into DC 14						
Financial Summary	Cash Flow Impact by Year					
	1st Half 2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
	0	1	2	3	4	5
Incremental Revenue / Reduced COGS	\$ -	\$ 137,214	\$ 139,591	\$ 141,644	\$ 144,444	\$ 148,553
Ongoing Expense Savings	\$ -	\$ 869,385	\$ 882,112	\$ 895,822	\$ 916,309	\$ 944,776
Depreciation	\$ -	\$ (22,675)	\$ (22,675)	\$ (22,675)	\$ (22,675)	\$ (22,675)
Amortization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Asset write-off	\$ (140,635)	\$ -	\$ -	\$ -	\$ -	\$ -
Initial one-time expense	\$ (852,132)	\$ (75,000)	\$ -	\$ -	\$ -	\$ -
EBIT Impact	\$ (992,767)	\$ 908,924	\$ 999,028	\$ 1,014,791	\$ 1,038,079	\$ 1,070,654
EBIT Impact	\$ (992,767)	\$ 908,924	\$ 999,028	\$ 1,014,791	\$ 1,038,079	\$ 1,070,654
Adjust for Non-Cash Items						
Depreciation	\$ -	\$ 22,675	\$ 22,675	\$ 22,675	\$ 22,675	\$ 22,675
Amortization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Asset Write-off	\$ 140,635	\$ -	\$ -	\$ -	\$ -	\$ -
Total Non-Cash Items	\$ 140,635	\$ 22,675	\$ 22,675	\$ 22,675	\$ 22,675	\$ 22,675
Income Tax	\$ 386,186	\$ (353,571)	\$ (388,622)	\$ (394,754)	\$ (403,813)	\$ (416,484)
Net Cash Flow Impact	\$ (465,946)	\$ 578,027	\$ 633,081	\$ 642,712	\$ 656,941	\$ 676,844
Inventory Reduction	\$ -	\$ 103,776				
Capital Investment	\$ (226,750)					
Total Cash Flow Impact	\$ (692,696)	\$ 681,804	\$ 633,081	\$ 642,712	\$ 656,941	\$ 676,844
	5-Year	10-Year				
Net Present Value (@ 13%)	1,435,554	2,689,627				
NPV of EVA (@ 13%)	1,271,406	2,443,070				
Total EVA Impact (Gross)	2,304,386	5,811,240				
Internal Rate of Return (%)	42.1%	31.9%				

Sensitivity & Risk Assessment

Risk Factors Were Quantified in Advance of Board Presentations (*)

- It is important to test many different sensitivities and risk factors that impact our distribution strategy such as the cost of fuel

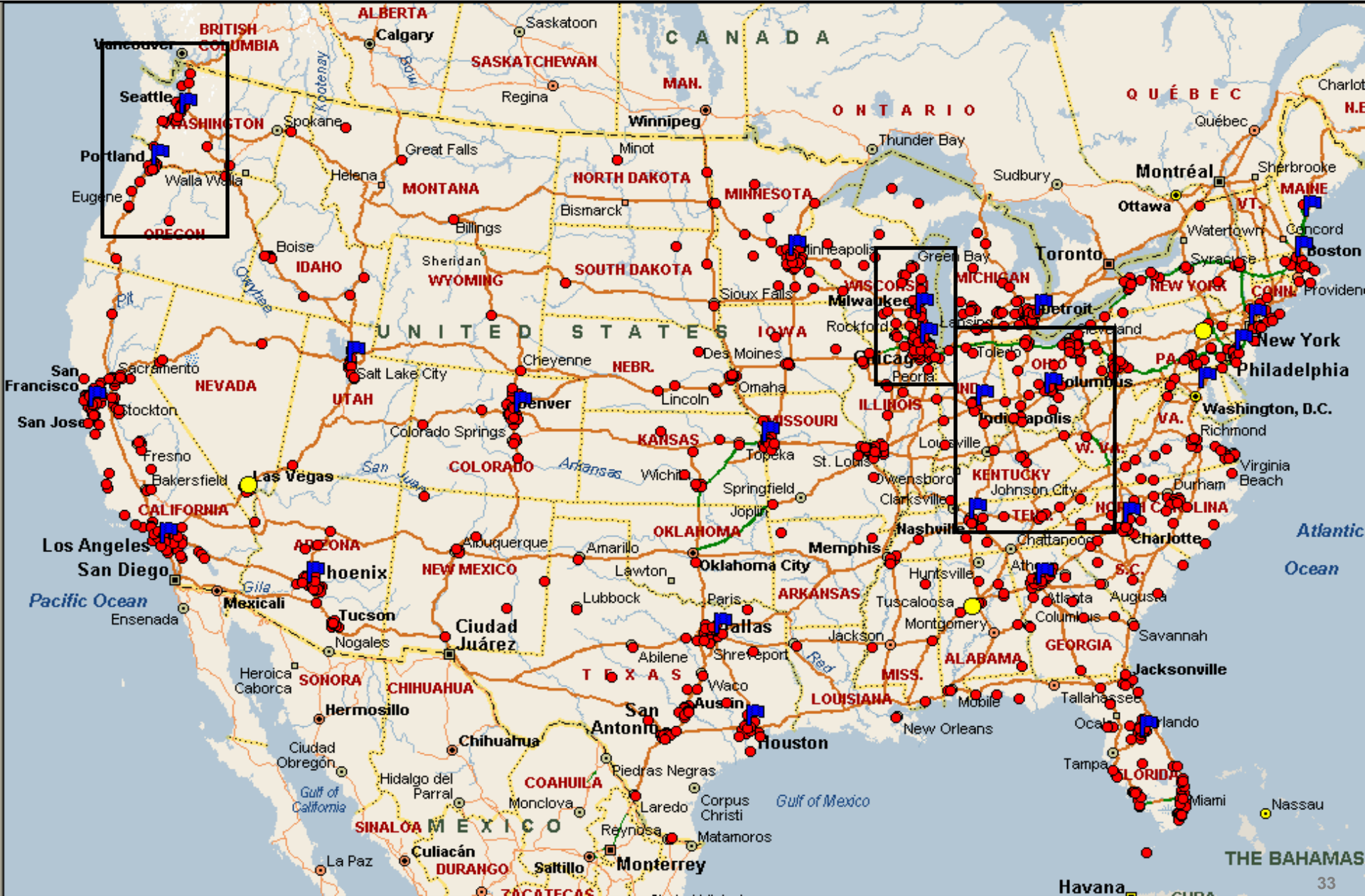
Scenario 1A – Consolidate DC 12 into DC 14 with Fuel Sensitivities						
Average 2009 Fuel Cost	Current Average Fuel Cost \$2.21		Fuel @ \$3.00 per gallon		Fuel @ \$5.00 per gallon	
Net Present Value (@ 13%)	\$ 1,489	\$ 2,719	\$ 1,468	\$ 2,686	\$ 1,417	\$ 2,603
NPV of EVA (@ 13%)	\$ 1,369	\$ 2,507	\$ 1,349	\$ 2,474	\$ 1,297	\$ 2,391
Total EVA Impact (Gross)	\$ 2,354	\$ 5,762	\$ 2,321	\$ 5,691	\$ 2,238	\$ 5,512
Internal Rate of Return (%)	85.7%	52.1%	85.2%	51.9%	84.0%	51.5%

Calculation assumes fuel increases at an annual inflationary rate of 1.3% to 3.3% from 2010 to 2019

Phase 1: Conclusions

- **At the end of Phase 1, OfficeMax made the decision to close 3 distribution centers**
 - **Consolidate Milwaukee into Chicago**
 - **Consolidate Portland into Seattle**
 - **Consolidate Indianapolis into Chicago, Columbus and Nashville**
 - **Additional consolidation opportunities were assessed which may be implemented in the future when the timing is right**

Phase 1 Conclusions



Phase 2 - Walk



- **Medium-Term:**
 - **Drive asset leverage through facility consolidation**
 - **Invest capital into new facilities to enable optimized network**
- **3 scenarios evaluated**
- **All scenarios rejected**
 - **EVA generated was insufficient to justify taking action**

Phase 3 - Run



- **Long-Term: Supporting Growth by Driving Asset Leverage**
 - **Integrate retail and contract supply chains to improve operating margins and increase asset utilization**
- **3 scenarios evaluated included:**
 - **Forward deployment of high cube velocity SKUs into CFC network to reduce transportation costs**
 - **Consolidate CFC facilities into PowerMax network**
 - **Add 4th retail PowerMax facility to reduce operating expenses**

Conclusions...

- **We established a long term direction for our supply chain network which included:**
 - **Optimize the inventory/operating cost/gross margin equation by strategically stocking inventory within the CFC network**
 - **Strategically deploying inventory within the CFC network to reduce OfficeMax's reliance on wholesalers and enhance gross margins**
 - **Forward deploying fast-moving items closer to customers to reduce CFC to CFC transfers and operating costs**
 - **Consolidating (i.e. rear-deploying) slow-moving items into fewer locations to reduce safety stock and investment in inventory**
- **The actions taken to date have not impact customer service levels and have generated \$3.0 Million in annual operating expense savings**

OfficeMax Strategic Direction

- **Disciplined planning and execution to consistently improve product availability, inventory productivity, and cost productivity**
 - **Integration of retail and CFC distribution networks to drive increased leverage of existing assets**
 - **Forward deployment of high velocity SKUs**
 - **Rear deployment of slow velocity SKUs**
 - **Increase self-distribution of non-stock SKUs that provide strong margins**

Agenda

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Distribution Network Strategy

Key Takeaways

Key Takeaways: Success Factors For the Project

- **Supply chain strategy can only be optimized if there exists a well-defined business strategy that is in place**
 - **Logistics is a support function and it cannot be optimized unless a business strategy has already been defined as a guiding light.**
 - **Otherwise we head directly into the storm with no beacon to guide us.**



Key Takeaways: Success Factors For the Project

- **Data Quality is Critical:**
 - **The ability to obtain clean, accurate data drives costs and timeframes for any study.**
 - **It is common to make data assumptions.**
 - **Establish a level of precision and a time period for data gathering that is appropriate to the study because perfect data will never be available**



Everyone thinks they have great data until they get into a logistics study and find out otherwise...

Key Takeaways: Success Factors For the Project

- **Establish a cross-functional team:**
 - **OfficeMax had 15 people on the team**
 - **Reports into Project Leadership & Committee**
 - **To support the project by providing an overall understanding of the business**
 - **To make decisions throughout the project**
 - **To participate in regular scheduled updates and watershed meetings**



Key Takeaways: Success Factors For the Project

- Don't try to determine all scenarios upfront.
 - The optimization process will invoke new “what-if” scenarios that will challenge pre-conceived strategies.
 - Management will want to explore “hybrid” scenarios as the results begin to be understood.
 - Expect the unexpected because the direction will take on new direction as the project unfolds



Key Takeaways: Avoid Black Box Numbers

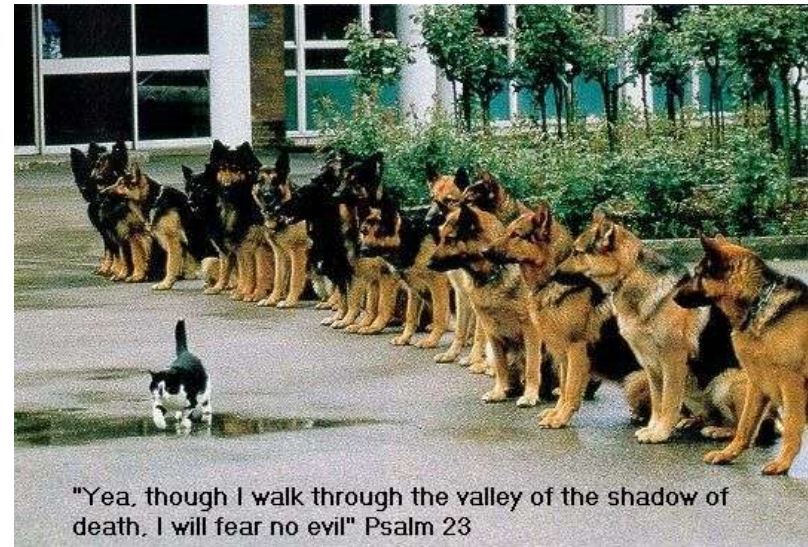
- Financial accountants are “Tom Doubters” who want to understand the details under the savings numbers.
 - Using too many average cost factors can lead to bad conclusions
 - Detailed after tax cash flow pro formas help to ensure real decisions are taken rather than placing the study results on a shelf
 - Be sure to provide sensitivity analysis on key risk factors



Too many false promises of savings have been submitted in the past and management wants to understand savings analytics in detail

Key Takeaways: Success Factors For the Project

- **Optimization of operating expenses is only one dimension of a supply chain albeit an important one.**
- **It is important to address all shareholder concerns:**
 - **Customer service impacts**
 - **Minimizing risks - business, political, currency, tax, legal, labor, etc.**
 - **Tax implications**
 - **Liabilities associated with real estate holdings**
 - **Information technology constraints**
 - **Fuel cost sensitivity**



"Yea, though I walk through the valley of the shadow of death, I will fear no evil" Psalm 23

Time to Ask Questions...



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A Brief Timeline 1988 - 2008

Year	Event
1988	OfficeMax founded in Cleveland, OH by Michael Feuer . Store #1 opened in Mayfield Heights, OH.
1990	Takeover of Office Square stores, previously owned by Kmart, in exchange for a 22% equity stake.
1991	1991, Kmart increases its stake in OfficeMax to 92%.
1992	OfficeMax acquires BizMart
1993	OfficeMax acquires OW-Office Warehouse, a retailer based in Virginia
1995	OfficeMax spun off of Kmart and becomes a NYSE-(OMX)-publicly-traded corporation, based in Shaker Heights, Ohio
1998	95% of direct store delivery SKUs from 1000 vendors are moved to centralized distribution by opening up 3 PowerMax retail distribution centers.
2003	Boise Cascade Office Products Corporation (Itasca, IL) acquires OfficeMax for \$1.1 Billion
2003-2008	Company focuses on rationalizing cost structure by improving inventory turns and taking out operating expenses