



Freese & Associates, Inc.

and

The Cincinnati Chapter of



Present

Supply Chain Management in Turbulent Times

**Kingsgate Marriott at the University of Cincinnati
April 20, 2010**



Agenda

- **Supply Chain Management**
 - o History
 - o Definition
 - o Evolution
- **The State of Logistics**
- **Turbulent Times**
 - o The Perfect Storm
 - o Economic & Markets
- **SCM Trends**
- **Economic Direction & Impacts**
- **Financial Impacts of SCM**
- **Keys to the Future**
- **Q & A**



Supply Chain Management



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Supply Chain History



Stonehenge
5,000 years ago

Roman Empire
2,000 years ago





What is Supply Chain Management?



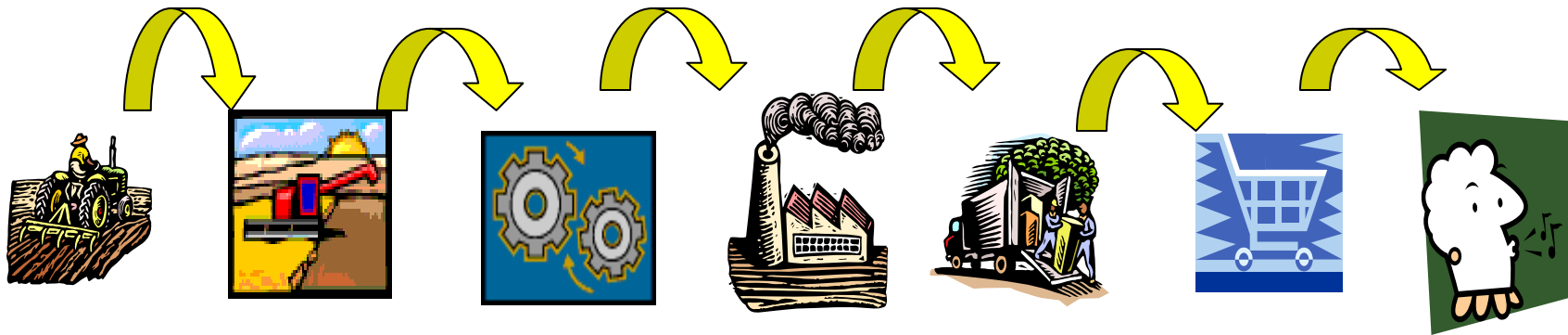


Supply Chain Management

“Is the integration of business processes from original suppliers through end-users that provides products, services and information that add value for customers”



Suppliers' Supplier To Customers' Customer



“Demand Management

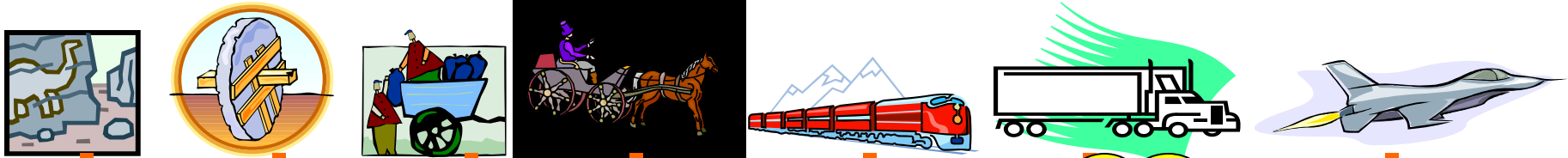


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The Evolution of SCM



Prehistoric

2000

More Attention
From Senior
Management

•Sales,
Manufacturing,
Purchasing,
Transportation

•Sales/Logistics/Operations

•Inception of
SCM

How long will it take??

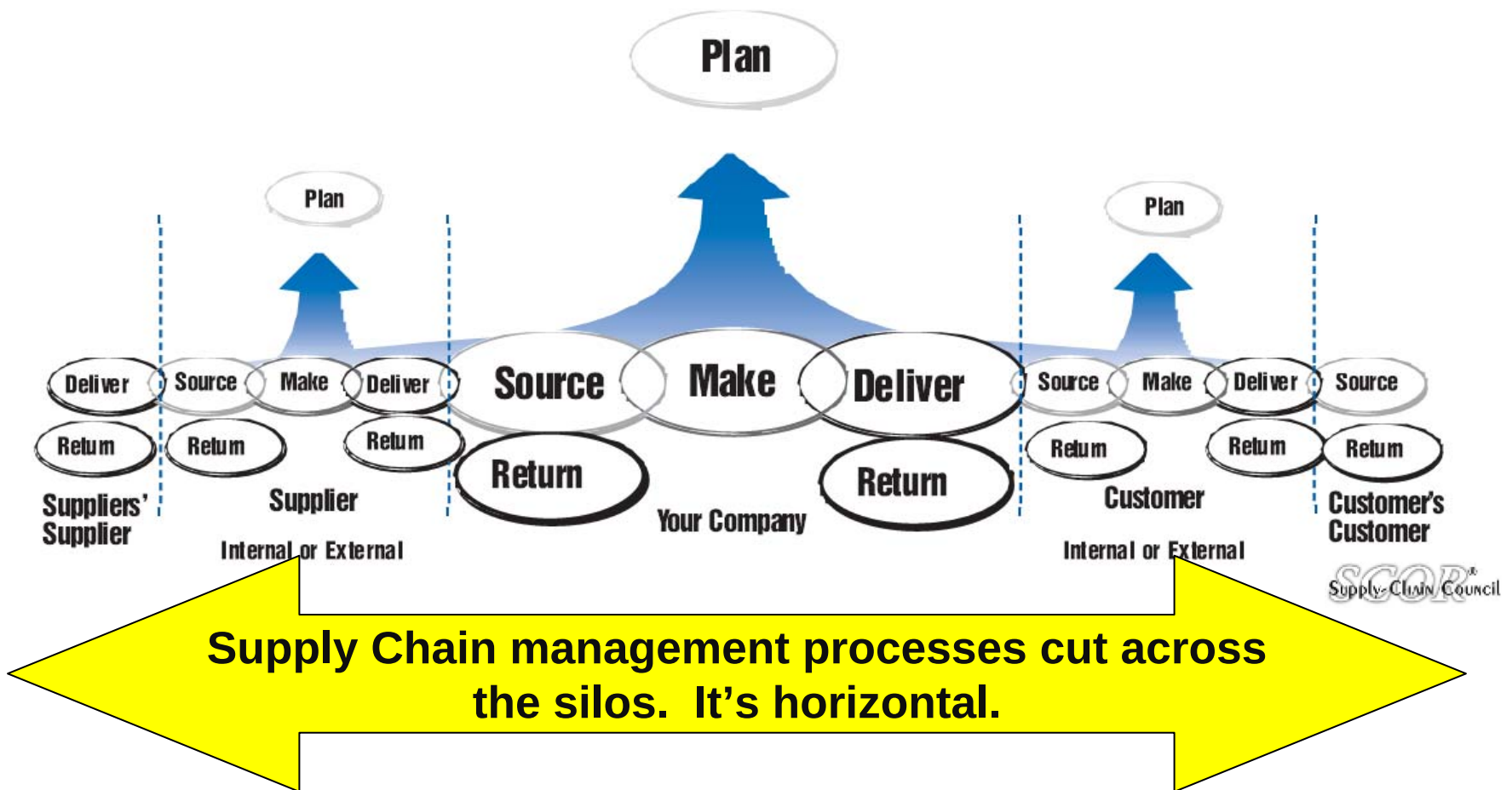
SCM

Post WWII

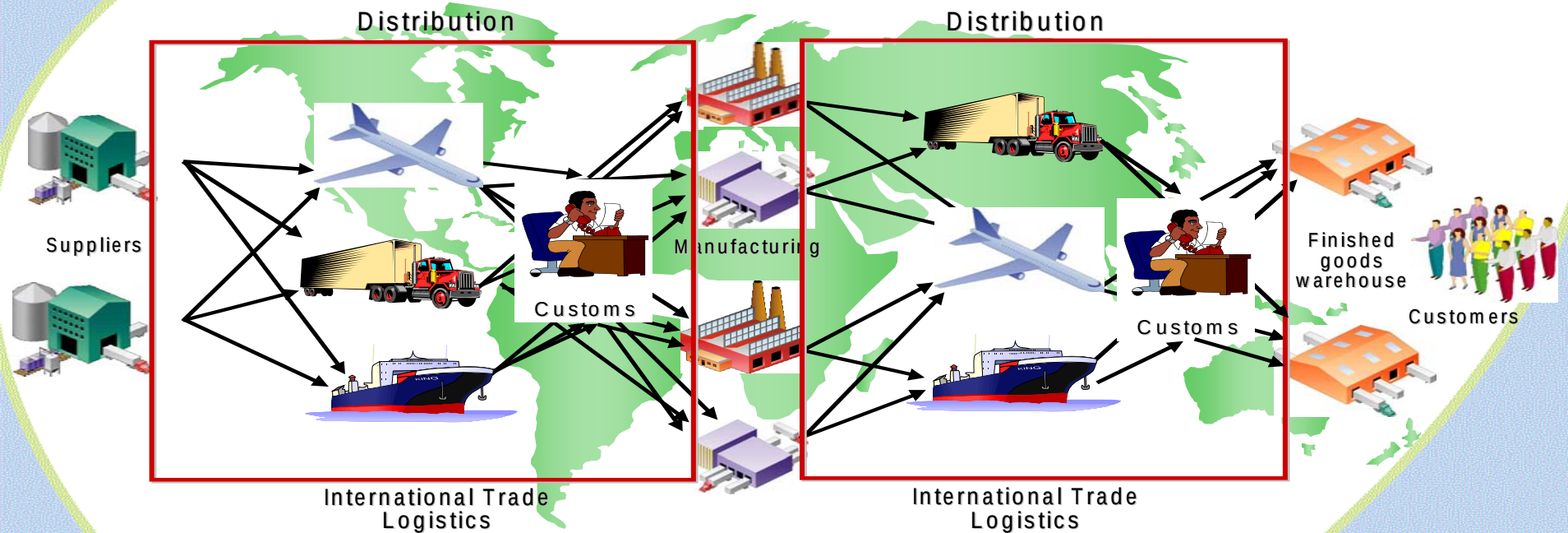
1982

2???

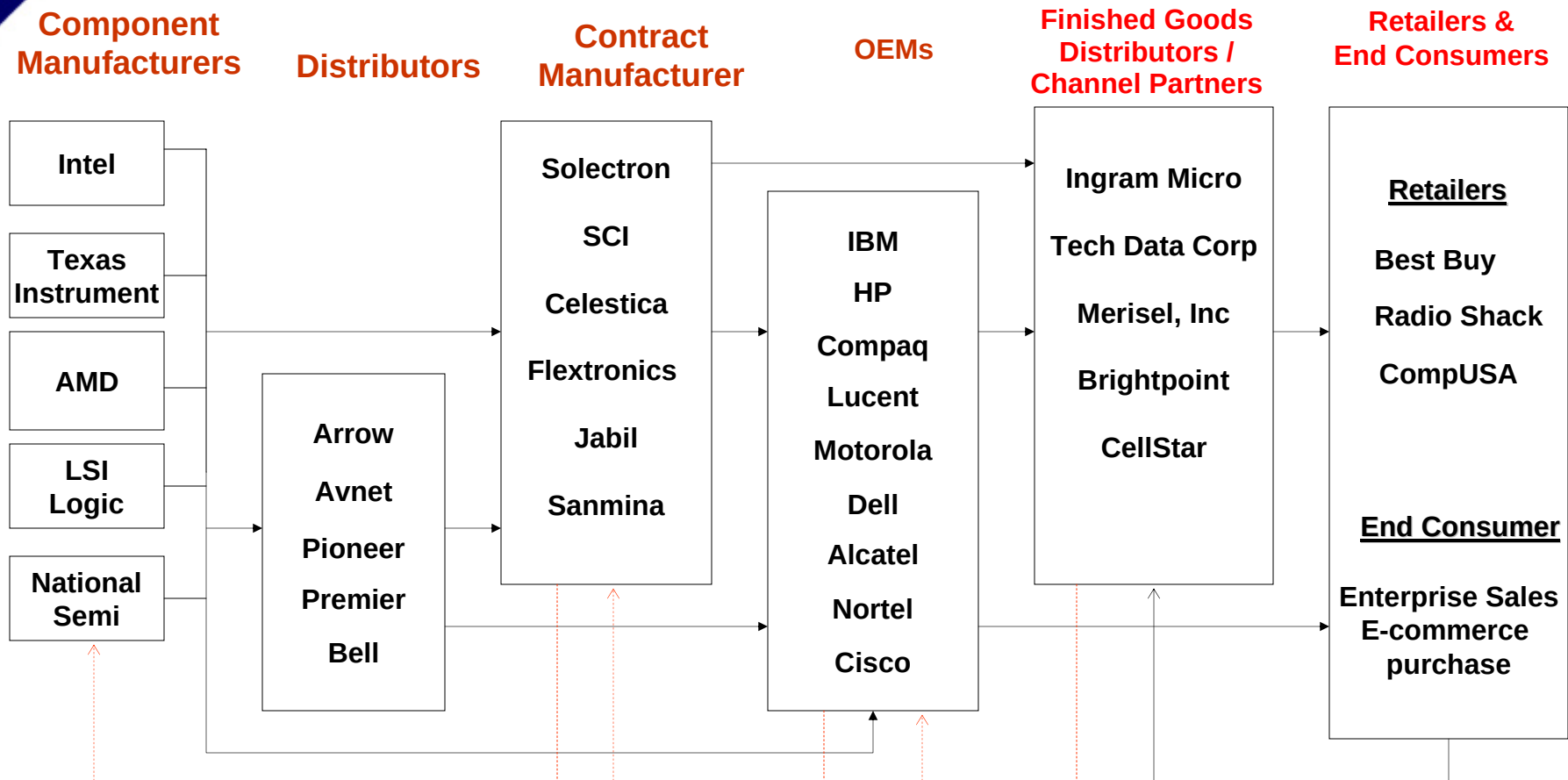
A horizontal process view is the foundation to Supply Chain Management



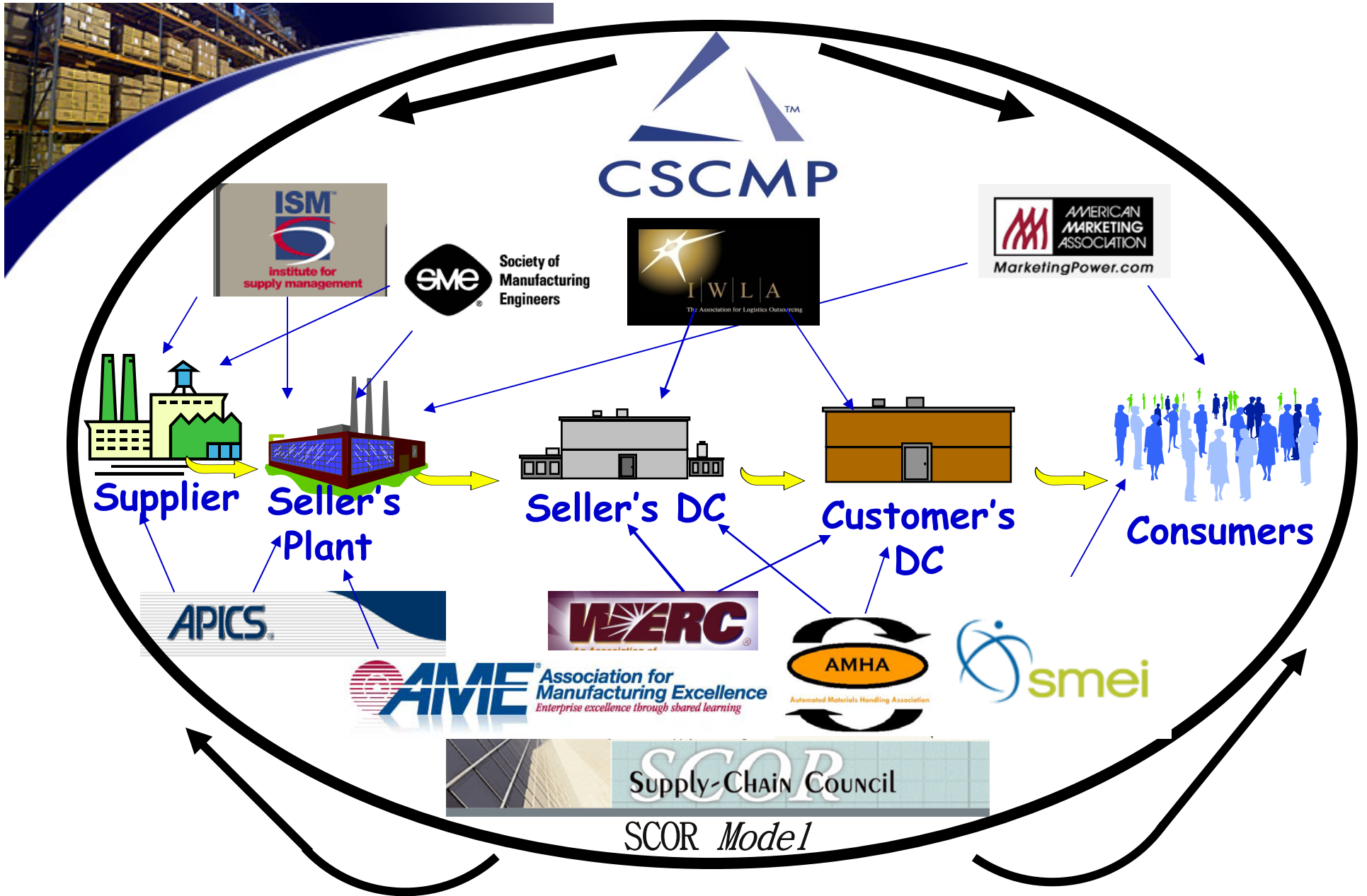
Most supply chains are global



Electronics Supply Chain



Reverse Logistics





Best in Class Performance & Potential Savings

Industry	Total Revenue Billions	<i>Best in class</i>	<i>Median Logistics Costs</i>	Potential Savings
Chemicals & Pharmaceuticals	\$641b	3.9%	11.2%	\$46.8b
Computers & Electronic	\$356b	4.0%	8.3%	\$15.3b
Telecommunications	\$470b	3.3%	8.3%	\$23.5b
Consumer Packaged Goods	\$3,231b	4.9%	9.2%	\$138.9b
Defense & Industrial	\$1,991b	4.3%	10.2%	\$117.5b
Source: SRI International				



Benefits of SCM

Strengthens vendor /customer relations

Facilitates planning at all levels

Allows all partners in the supply chain to monitor shipment progress

Minimizes bottlenecks created by waiting for proper documents

Enables all parties to participate in process improvements

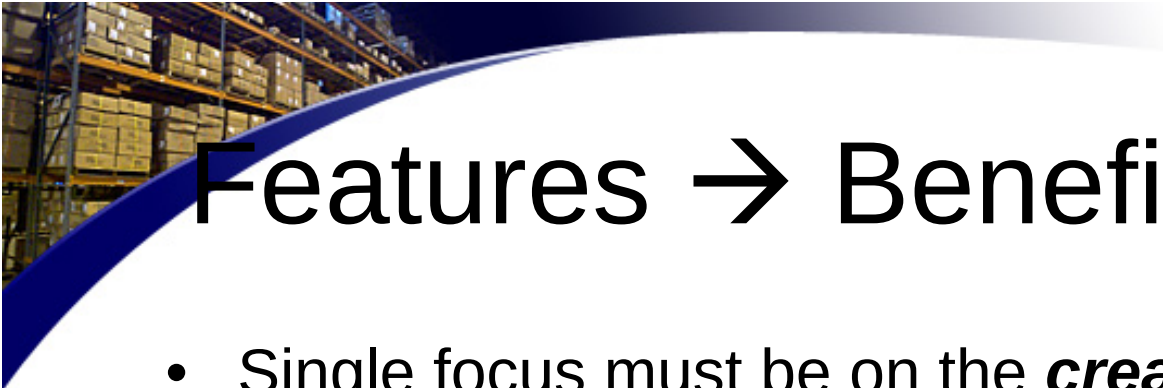
Eliminates duplicate efforts

Enhances supply chain security



SCM Has Impacts

- ✓ A study by Georgia Tech showed that a company's stock price drops 8% when the company experiences a glitch in its supply chain.
- ✓ A study at Miami University of Ohio showed that when a company adopts a new supply chain innovation, the company's stock price increases.
- ✓ A study by Bain & Company showed that companies employing sophisticated supply chain methods enjoyed 12 times greater profit than companies with unsophisticated methods.
- ✓ Wall Street: New found respect for SCM. In one SCM MBA program in the US, 21/32 grads received job offers from Investment Banking firms because of the importance of SCM to their clients!!



Features → Benefits → Value

- Single focus must be on the **creation of value**
- Key questions include
 - Value for whom?
 - How to create value through supply chain management?
 - How to measure and quantify the value that is created?
- Significant improvement needed in key areas such as:
 - Understanding customers' needs
 - Performance measurement and KPIs
 - Quantification of value and determination of ROI

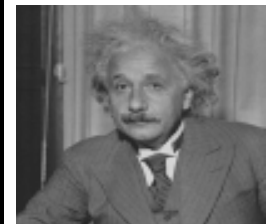
The Challenge is “Change”:



“It is not the strongest of the species that survive, nor the most intelligent, but those most responsive to change” (Charles Darwin)



“Consider how hard it is to change yourself, and you’ll understand what little chance you have of changing others.” (Albert Einstein)





State of Logistics

Magnitude

Impact



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U.S. Logistics Cost as Percent of GDP in 2008

Carrying Costs - \$ 2.026 Trillion All Business Inventory \$ Billions

Interest	103
Taxes, Obsolescence, Depreciation, Insurance	273
Warehousing	<u>111</u>

Subtotal 487

Transportation Costs

Motor Carriers:	
Truck - Intercity	455
Truck - Local	<u>216</u>

Subtotal 671

Other Carriers:

Railroads	58
Water	38
Oil Pipelines	10
Air	41
Forwarders	<u>30</u>

Subtotal 177

Shipper Related Costs	8
Logistics Administration	<u>54</u>

TOTAL LOGISTICS COST 1,397



U.S. Business Logistics Costs





The U.S. Business Logistics System Cost is the Equivalent of 9.4 Percent of Current GDP in 2008

	\$ Billions
Carrying Costs - \$ 1.965 Trillion All Business Inventory	
Interest	47
Taxes, Obsolescence, Depreciation, Insurance	252
Warehousing	122
Subtotal	420
Transportation Costs	
Motor Carriers:	
Truck - Intercity	460
Truck - Local	220
Subtotal	680
Other Carriers:	
Railroads	63
Water (International 33 Domestic 6)	39
Oil Pipelines	10
Air (International 16 Domestic 24)	40
Forwarders	32
Subtotal	184
Shipper Related Costs	8
Logistics Administration	52

TOTAL LOGISTICS COST

1,344

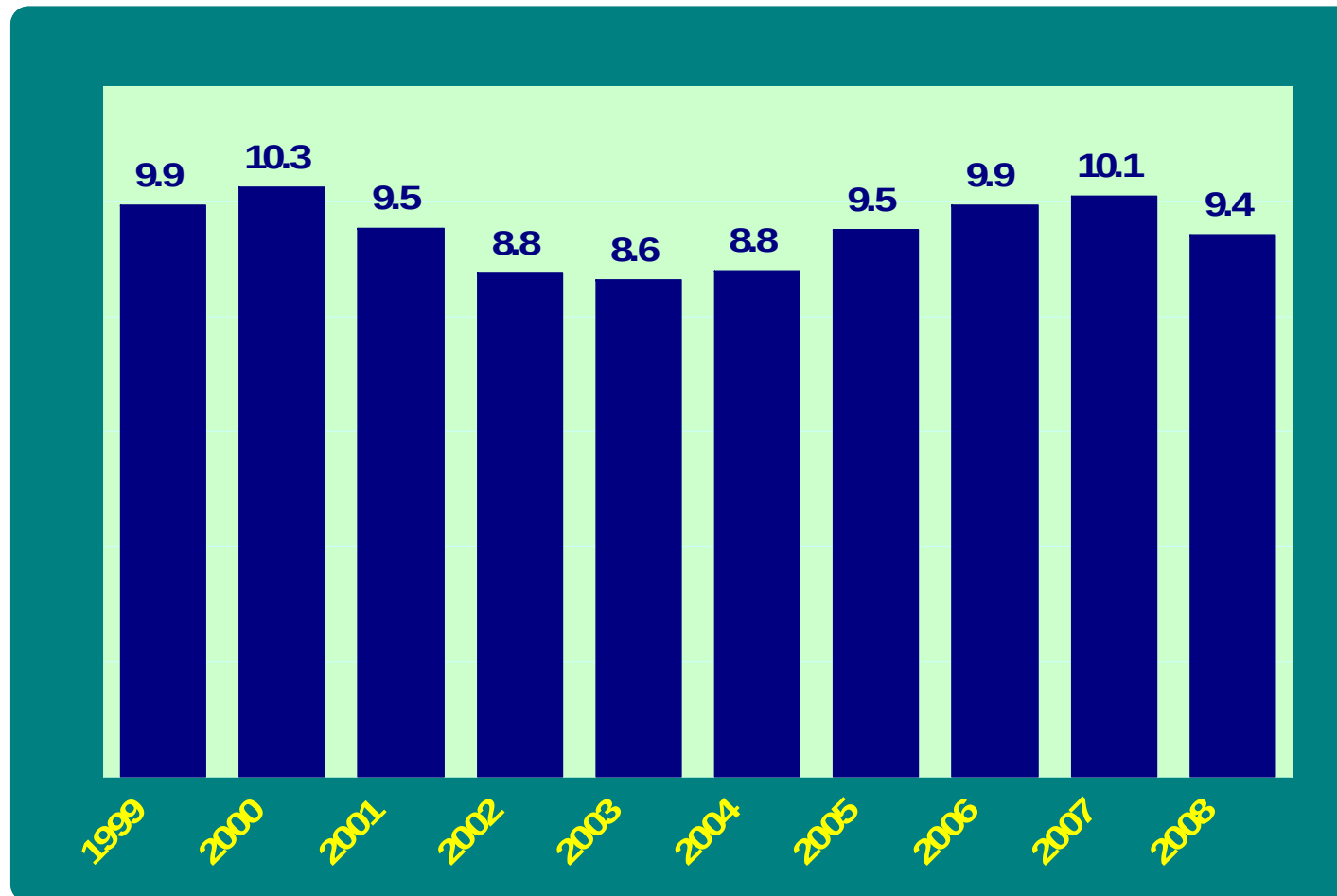
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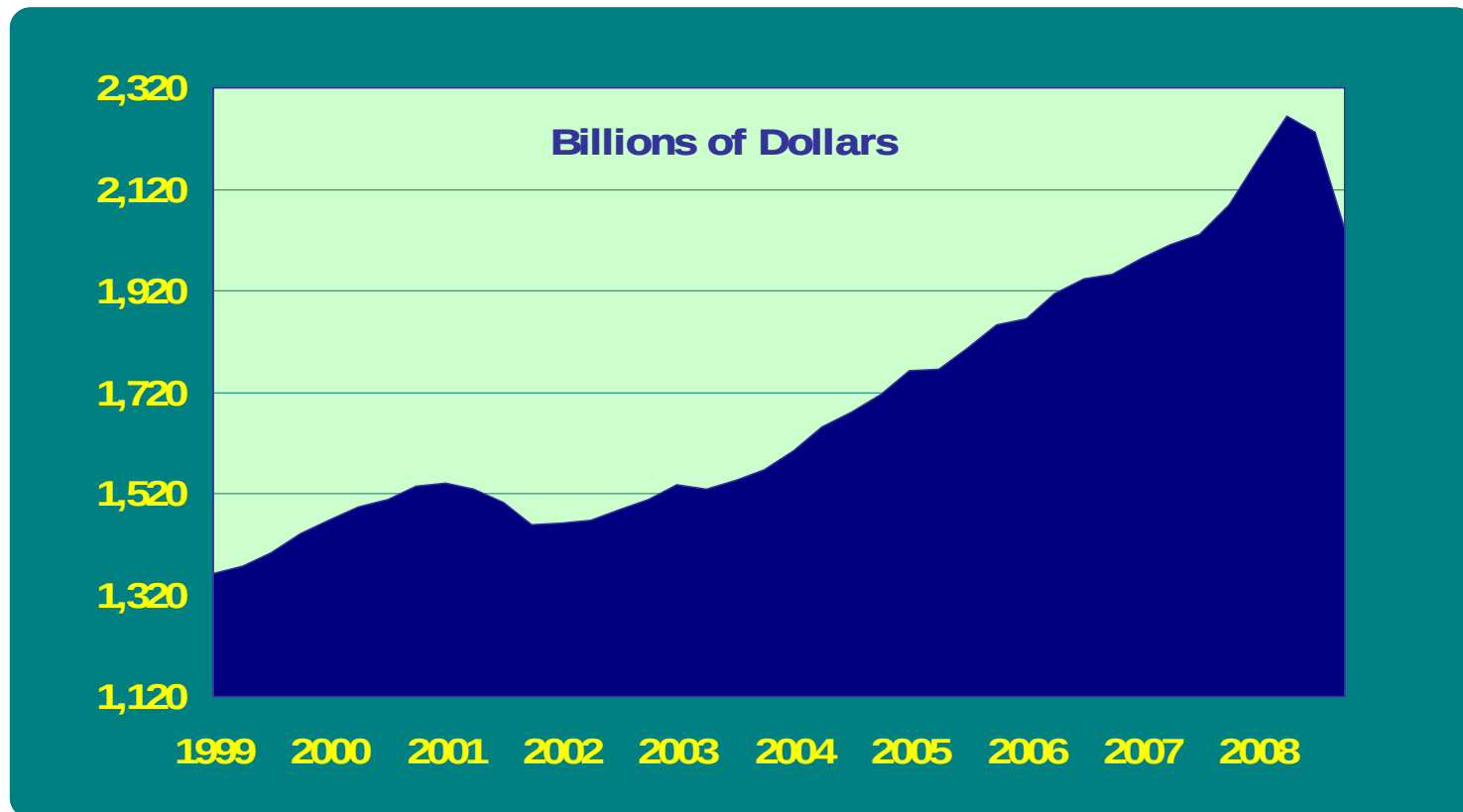


Logistics Cost As A Percent of GDP





Total U.S. Business Inventories



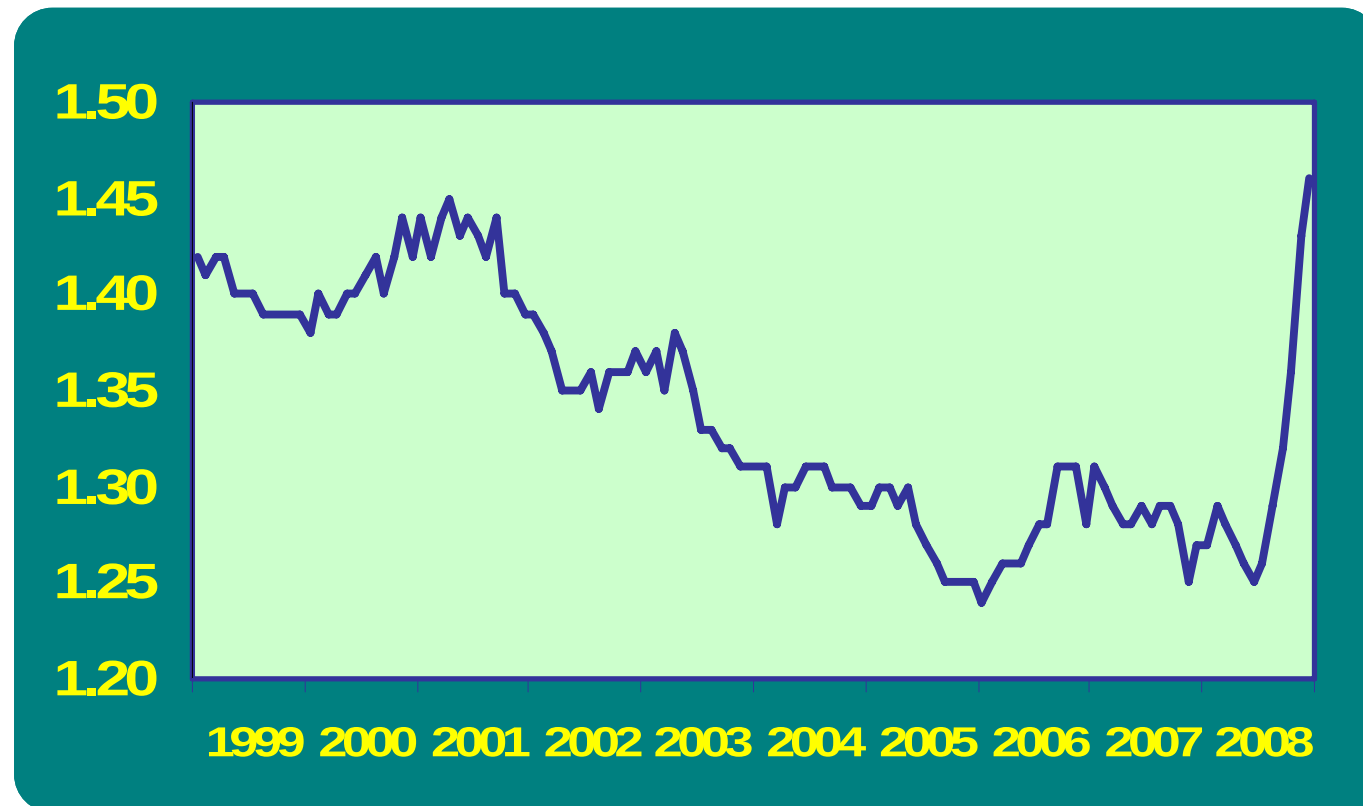
Source: U.S. Department of Commerce, Census Bureau

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The Inventory to Sales Ratio Rose Sharply in the Second Half of 2008



Source: U.S. Department of Commerce, Census Bureau

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U.S. A
Ha



Source: Board of Governors of the Federal Reserve System

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The U.S. Business Logistics System Cost is the Equivalent of 9.4 Percent of Current GDP in 2008

		\$ Billions	
Carrying Costs - \$ 1.965 Trillion All Business Inventory			
Interest		47	> down 13 %
Taxes, Obsolescence, Depreciation, Insurance		252	
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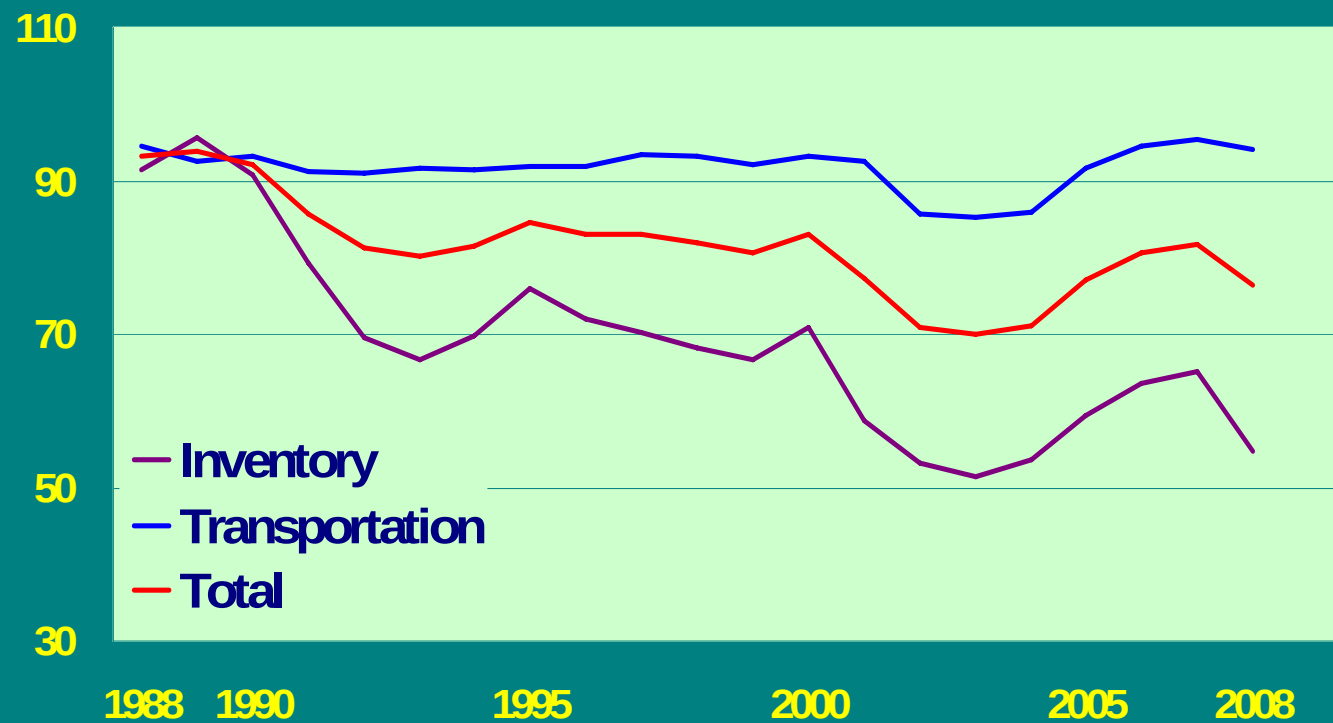
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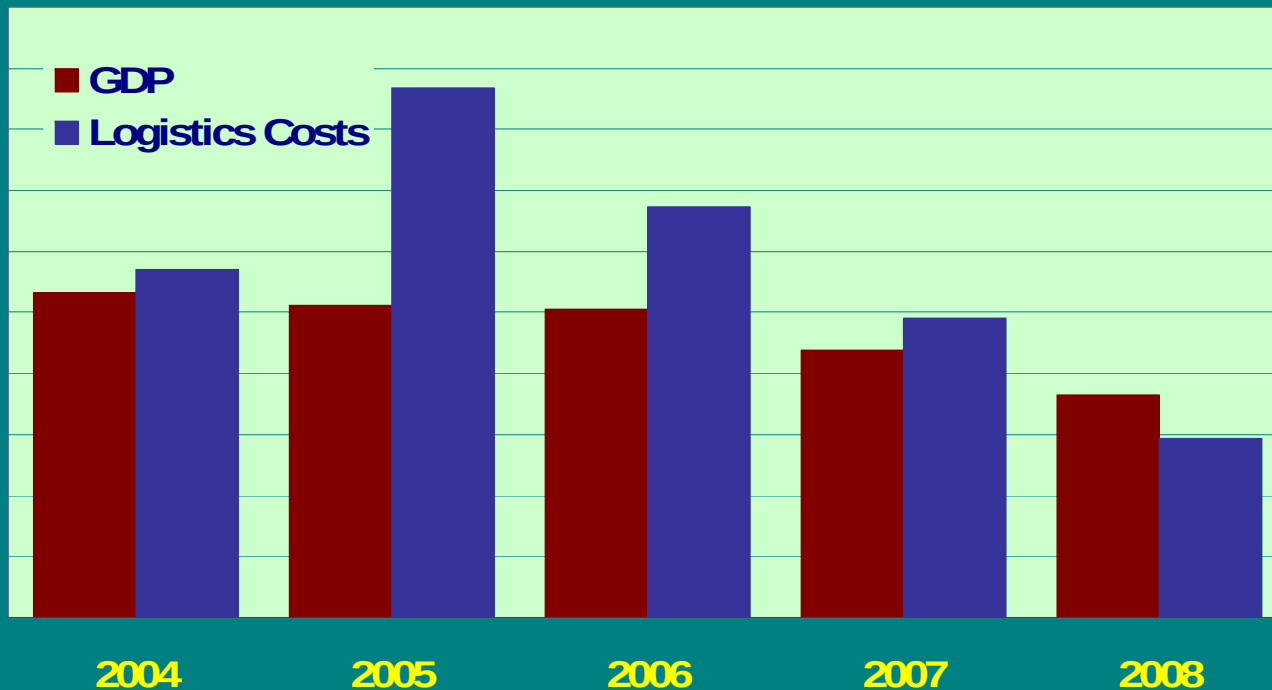
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Index of Logistics Costs as a Percent of GDP 1988 - 2008



GDP Growth and Logistics Cost Growth



Transportation Infrastructure Report Card

2009 Grades

Roads

D

Bridges

C

Rail

C-

Inland Waterways

D-

Ports and Harbors

inc

Source: American Society of Civil Engineers



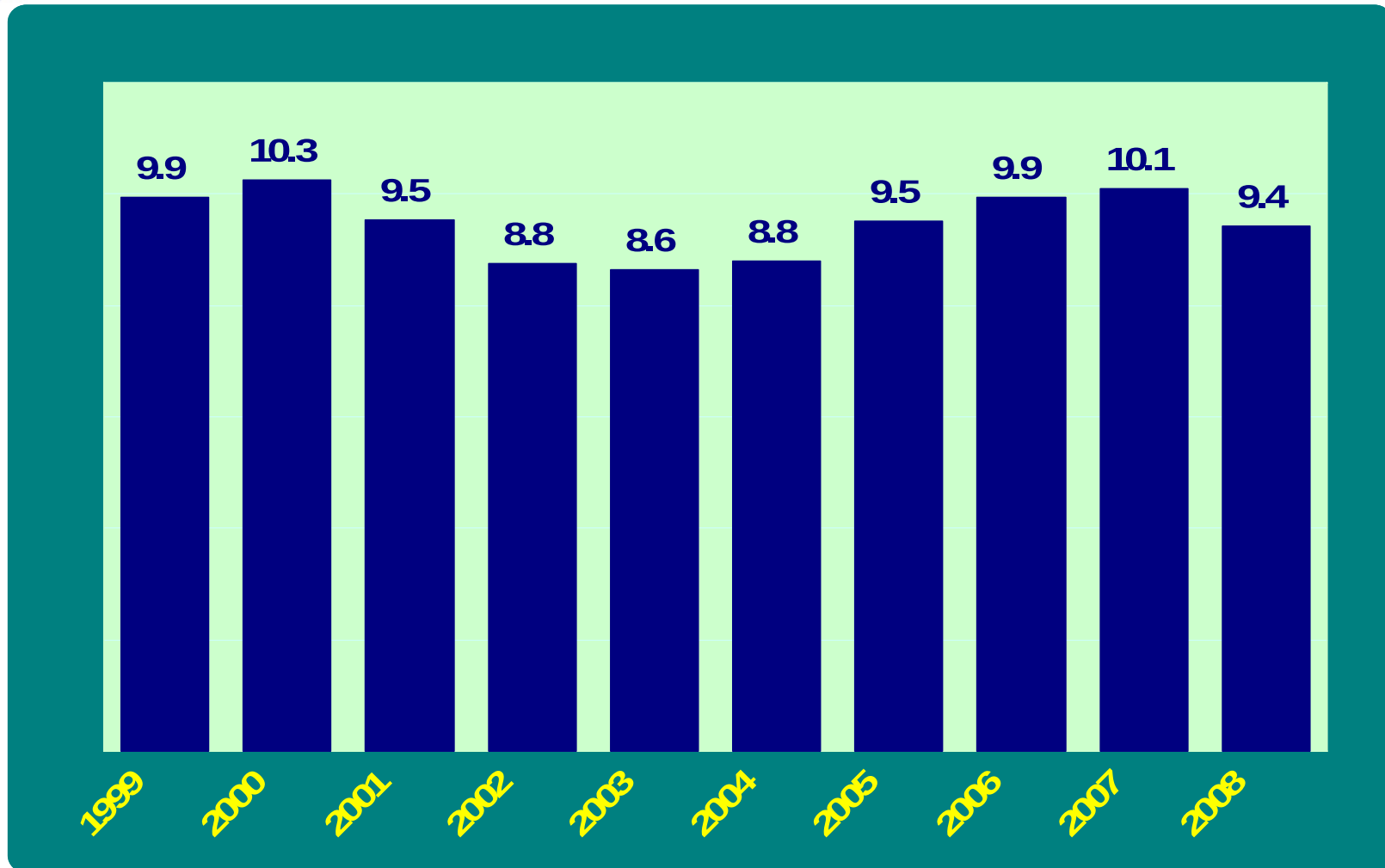


Summary

- 2008 Logistics Costs fell to \$1.3 trillion
- Logistics cost were equivalent to 9.4 percent of GDP in 2008
- Transportation costs rose 2.0 percent and now account for 6.1 percent of nominal GDP
- Inventory carrying costs declined 13.2 percent and now account for 2.9 percent of nominal GDP – both decreased inventories and lower interest rates contributed
- The weak dollar spurred demand for U.S. goods pushing up exports. Higher shipments of export goods partially offset the drop in domestic shipping demand in 2008.



Cost As A Percent of GDP

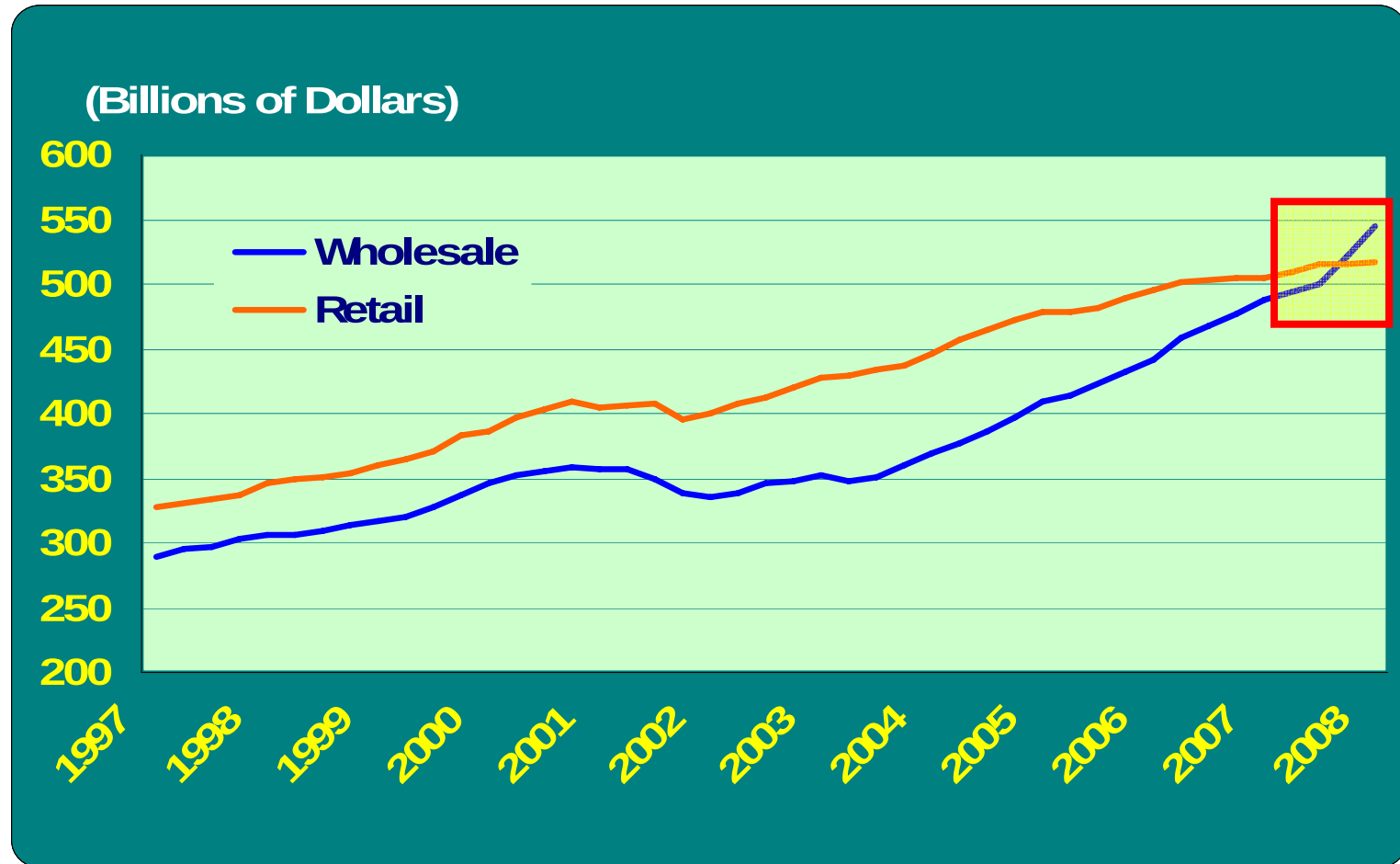




The Changing Costs of Logistics

- From 2000/2004 Logistics Costs Declined
 - Low Energy Costs
 - Deregulation
 - Increased Information Technology
- Starting in 2005 Logistics Costs Increased
 - Rising Energy Costs
 - Rising Inventories
 - Declining Transportation Capacity

Wholesale Vs. Retail Inventories



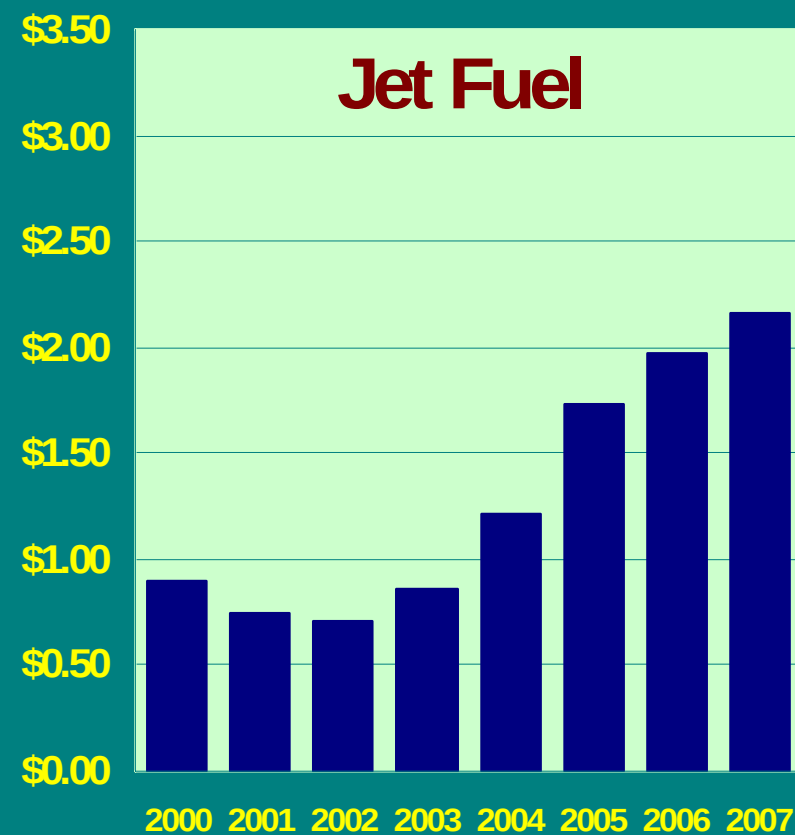
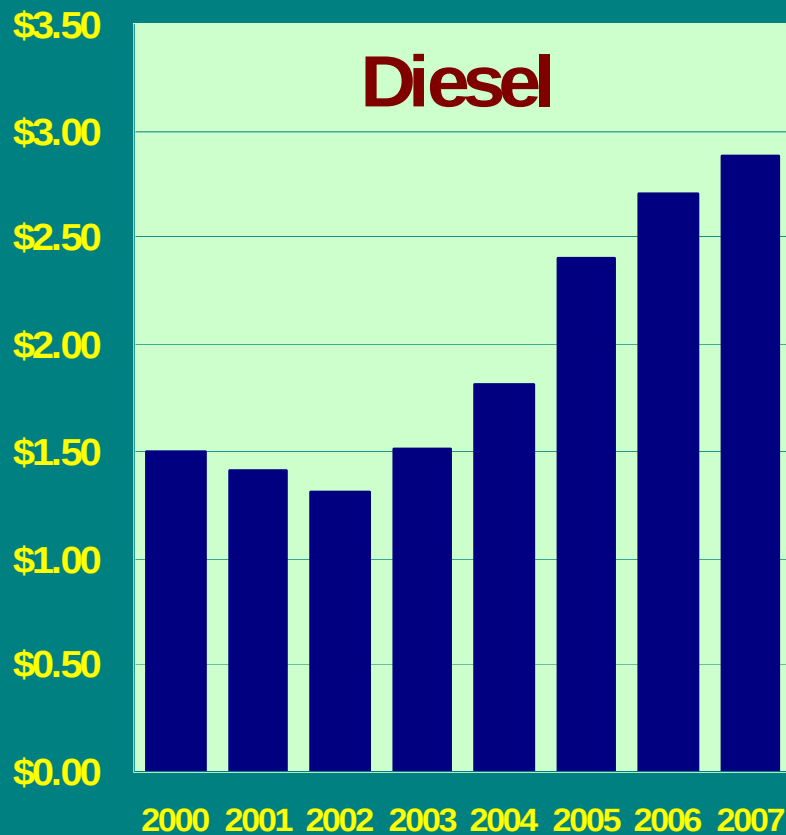
Source: U.S. Department of Commerce, Bureau of Economic Analysis

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Substantially Higher Fuel Prices



Fuel Efficiency

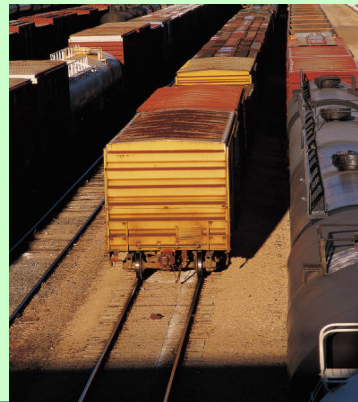
Ton-Miles Per Gallon

576



Barge

413



Railroad

155



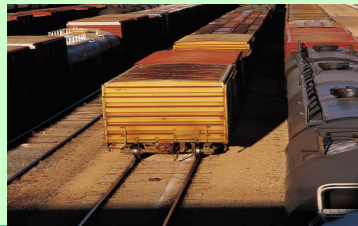
Truck

Source: Texas Transportation Institute Study, Nov. 2007

Mode Utilization



Barge



Railroad



Truck



Global Comparison of Logistics Expenditures

Economy

Higher Output--GDP

Better use of resources

Multi-use Infrastructure

Businesses

Market Access

Market Integration

Cost Efficiency

Consumers

More Goods and Services

Wider Availability

Lower Prices/Income

U.S.

9.4% GDP

Asia 13-20% GDP

China 15% GDP

Europe 12-14% GDP

India 13% GDP

Japan 11% GDP

Mexico 14% GDP



SOME MAGNITUDES...

The cost of logistics in the U. S. was \$1.4 trillion in 2007; about 10.1% of our GDP (gross domestic product).

U. S. expenditure on logistics is larger than the national GDP of all but 12 countries. (For example, U. S. logistics expenditures are larger than the GDP of Spain).

Total domestic business inventories carrying costs rose 9 percent and now account for 3.5 percent of nominal GDP.

Transportation costs rose 5.9 percent and now account for 6.2 percent of nominal GDP

In 1980 logistics represented 17.9% of America's GDP. Today it is 10.1%. By comparison, estimated logistics costs represent 15% of China's GDP and 13% in India.



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The Perfect Storm



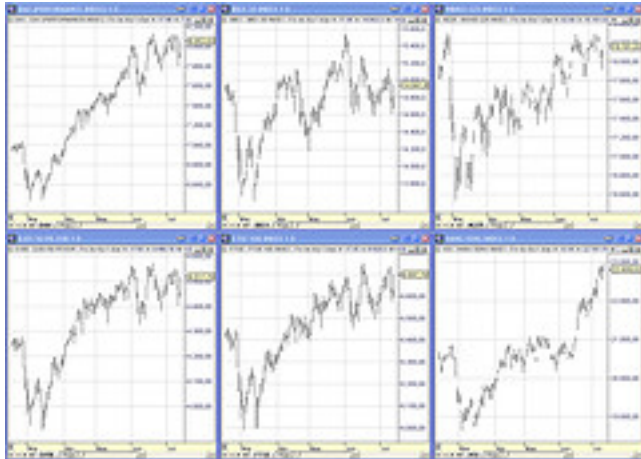
What We've Seen

Gasoline prices have risen lowered
And were they stop no one knows



What About the Market?

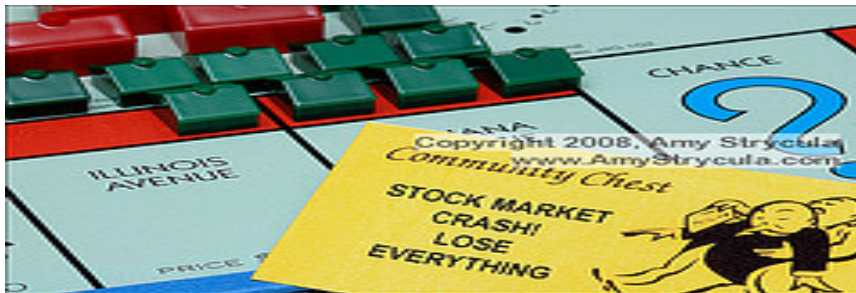
What Goes Up Can Also Go Down



2007



1938



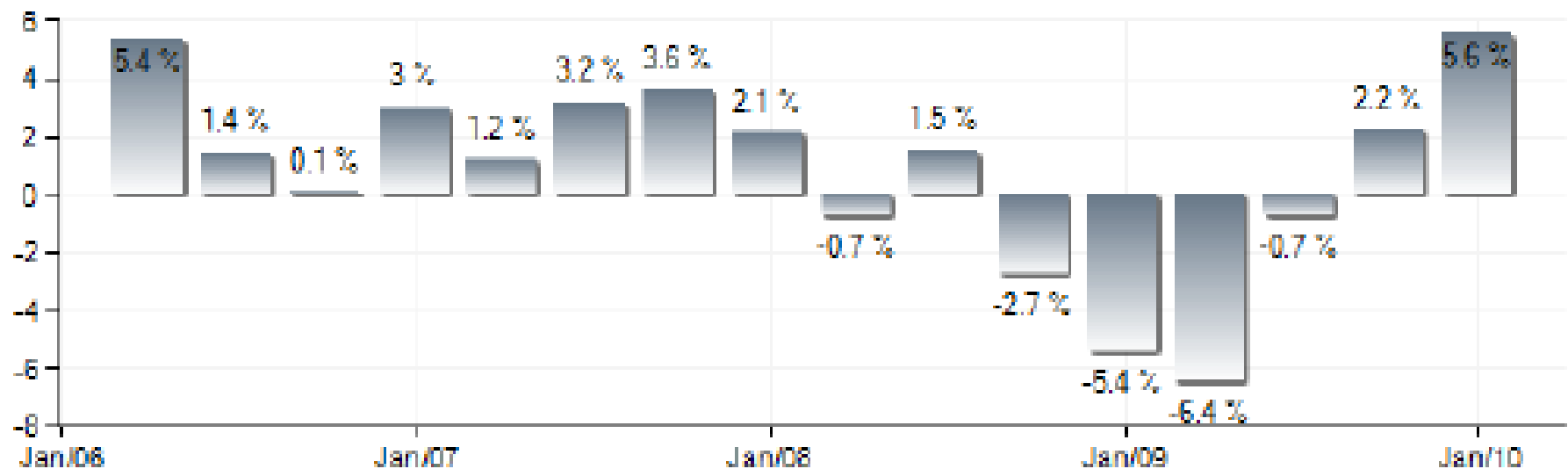
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GDP as an Indicator

United States GDP Growth Rate

United States GDP Growth Rate

— Annual GDP Growth Adjusted by Inflation



source: Bureau of Economic Analysis



Economic Indicators

	April 7, 2010	August 10, 2009	May 12, 2009
DJI Index	10,897	9,337	8,469
Inflation	2.10%	-1.19%	-0.45%
GDP Growth	5.60%	-1.03%	-6.29%
Unemployment	9.70%	9.40%	8.90%
Gold / Once	\$1,130.00	\$945.00	\$917.00
Oil / Barrel	\$87.05	\$70.60	\$58.85
Prime Rate	3.25%	3.25%	3.25%



MANUFACTURING AT A GLANCE MARCH 2010						
Index	Series Index March	Series Index February	Percentage Point Change	Direction	Rate of Change	Trend* (Months)
PMI	59.6	56.5	+3.1	Growing	Faster	8
New Orders	61.5	59.5	+2.0	Growing	Faster	9
Production	61.1	58.4	+2.7	Growing	Faster	10
Employment	55.1	56.1	-1.0	Growing	Slower	4
Supplier Deliveries	64.9	61.1	+3.8	Slowing	Faster	10
Inventories	55.3	47.3	+8.0	Growing	From Contracting	1
Customers' Inventories	39.0	37.0	+2.0	Too Low	Slower	12
Prices	75.0	67.0	+8.0	Increasing	Faster	9
Backlog of Orders	58.0	61.0	-3.0	Growing	Slower	3
Exports	61.5	56.5	+5.0	Growing	Faster	9
Imports	57.0	56.0	+1.0	Growing	Faster	7
OVERALL ECONOMY				Growing	Faster	11
Manufacturing Sector				Growing	Faster	8

Institute For Supply Management March 2010

Current PMI Direction

JPMorgan Global Manufacturing PMI

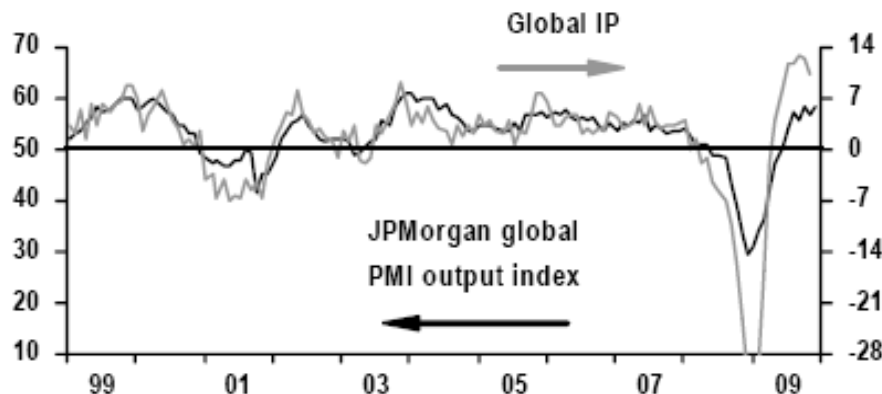
DI, sa



Global manufacturing output

DI, sa

%3m, saar



"December PMI data indicate that the global manufacturing sector approaches 2010 on a positive footing. The headline PMI rose to a 44-month high, with rates of growth in production and new orders accelerating. Employment also rose slightly for the first time since March 2008. If a rebound in the manufacturing labour market can be maintained, this should aid with sustaining the broader recovery. Price pressures are rising, but mainly as a result of the improving economic climate."

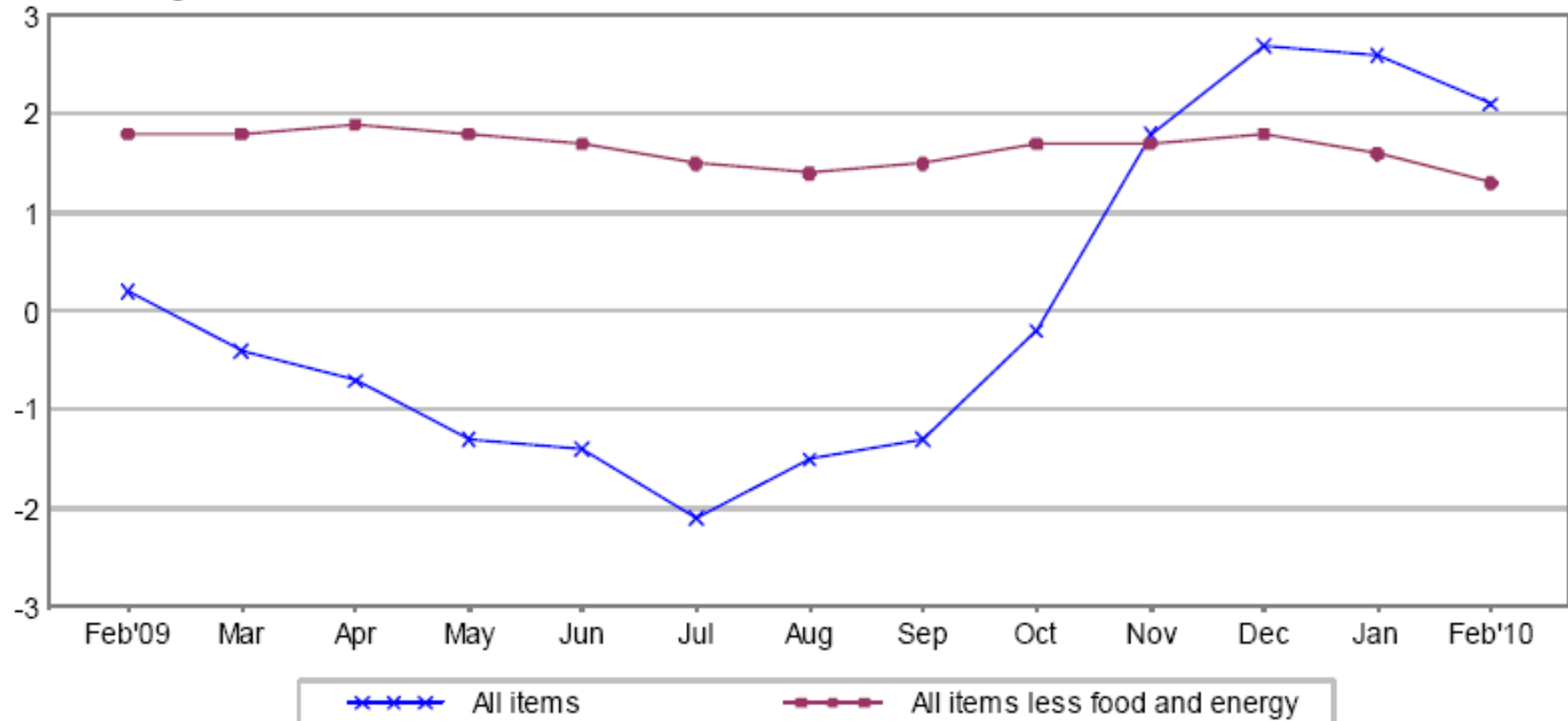
Global Manufacturing PMI Summary

50 = no change on previous month.

	Nov	Dec	Change	Summary
Global PMI	53.7	55.0	+	Expanding, faster rate
Output	56.8	58.2	+	Expanding, faster rate
New Orders	56.7	58.6	+	Expanding, faster rate
Input Prices	53.4	58.5	+	Rising, faster rate
Employment	49.4	50.2	+	Rising, change of direction

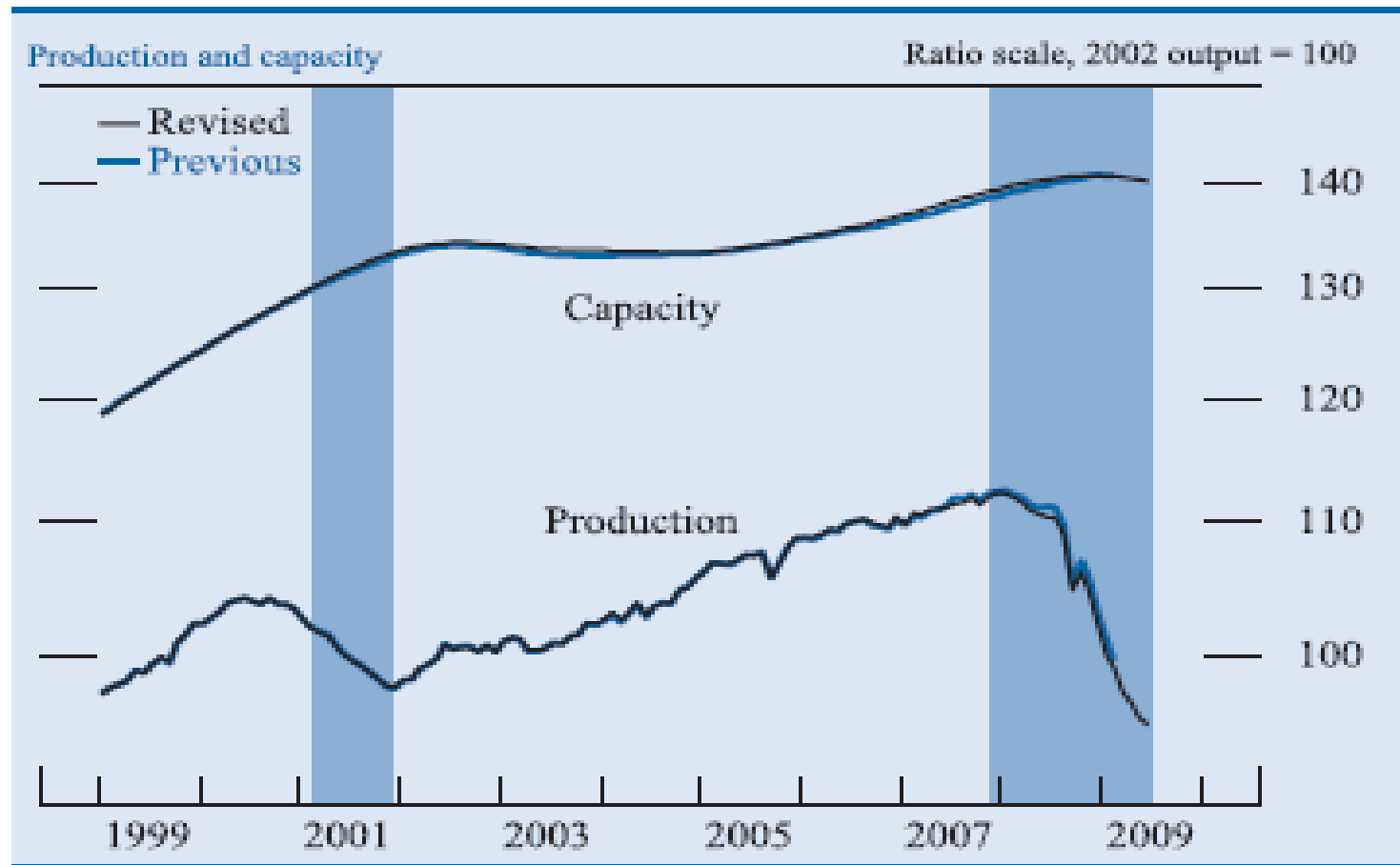
CPI February 2010

Chart 2. 12-month percent change in CPI for All Urban Consumers (CPI-U), not seasonally adjusted, Feb. 2009 - Feb. 2010
Percent change



U S Bureau of Labor Statistics April 2010

Industrial Production & Capacity



Federal Reserve Board August 2009

DJI 5 Year Trend



2010 Dow Jones & Company April 2010



How This Translates

Transportation for 2009, was flat or down because of:

- **Volumes being down for trucking** the largest segment.
 - In the current environment it was very difficult for rates to increase.
 - For the last two years fuel surcharges have been a significant chunk of revenue.
 - With fuel prices falling in the latter part of the year and volumes down many carriers eased off on the surcharges.
- **Rail volumes although the fourth highest have ever been flat to slightly up,**
 - because pricing has been soft and surcharges were removed.
- **Air Freight was down because,**
 - volumes are down,
 - fuel pricing hurt economics.
- **Water was down,**
 - both internationally and domestically.



The Future



What This Means in SCM

SCM Trends:

- **Reverse globalization** - new sourcing strategies, especially Mexico; rethinking many strategies
- **Changes in packaging design** - and routing to reduce ton-miles
- **Capacity issues** - loss of trucking capacity, excess capacity in container shipping industry, driver shortages
- **Transportation Companies** - Companies that come through this will be stronger, more agile players
- **Impact of the stimulus bill** - not enough nor aimed at the right spots to turn around SCM direction
- **Need For a Strong National Freight Transportation Policy** - needs to address entire supply chain, funding issues (reduced fuel consumption has hit the already inadequate Highway Trust Fund), best investment strategies, etc.
- **Fuel prices will be climbing again** - strategies to mitigate fuel volatility

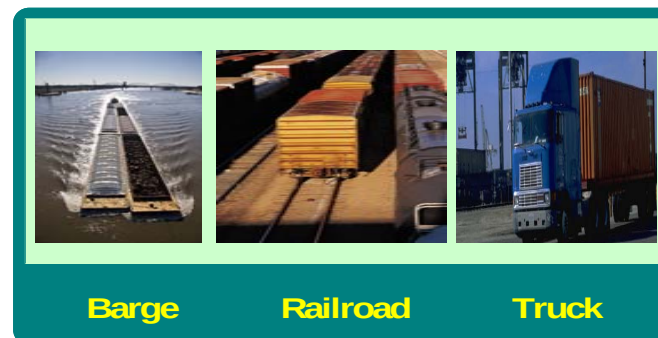
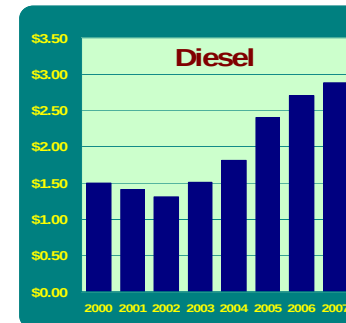


What This All Means in SCM

- **High fuel prices will led many to reevaluate their entire supply chains.**
 - companies are reevaluating where they are sourcing their raw materials,
 - where they are locating their manufacturing centers, and
 - where they are locating their distribution centers.
 - No longer is moving manufacturing operations to China seen as a panacea.
- **The rail and parcel/express sectors have weathered the best.**
- **LTL pricing is under the most pressure** because demand is heavily tied to the industrial economy and capital spending, it is not as consolidated as the rail and parcel sectors, and it hasn't had enough capacity taken out relative to lower industry volumes.

The Future

- The Economy
- Oil Prices
- Shrinking Capacity
- And More





Green Trends

- Investors see “green” practices as a reflection of good management practices.
- Today: Public relations tactic.
- Tomorrow: Real economic value strategies.
 - *Energy cost inflation will help green ROI get even better.*
- Cap and Trade

Green Trends Influencing Warehousing

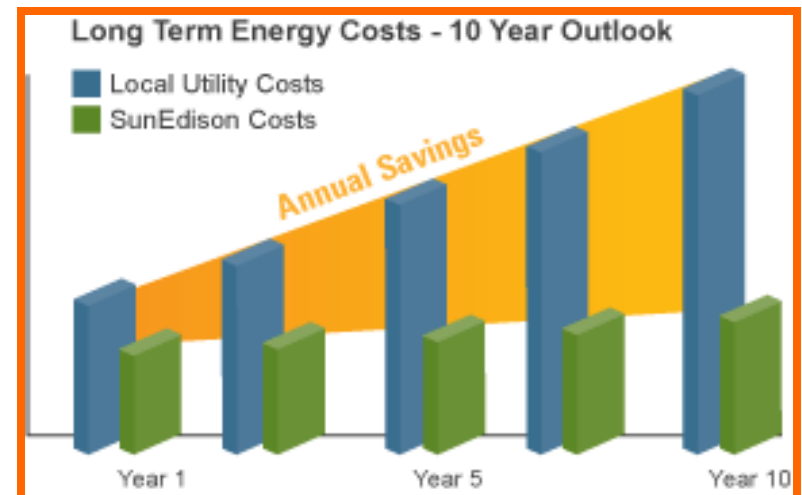
DC / Warehouse Facility items being considered include:

- **Energy Creation measures**
 - **Wind power units** – rooftop units - individual fans or horizontal row of blades at roof edge to capture air flow rising up and over building, & stand alone tower units.



Green Trends Influencing Warehousing

- Solar Power Stations
 - Atop Warehouses / DC's Why...???
 - ✓ Large available flat areas - “just sit there”
 - ✓ Solar panels not a great load factor
 - ✓ You pay *only* for the solar energy produced, at prices equal to or below current retail energy rates.





Mega Trends – Shifting Demographics



**China's middle class has grown
From 20% to 40% by 2020**



**By 2010, 450 million Indians will
Have middle class incomes**

**95% of the world population
Growth through 2050 will occur
In developing nations**

**Urban areas will produce nearly all
Of the population growth over the
Next 25 years**

What To Do When Supply Chains Go Wrong





Resilience

- When things go wrong . . .
- Reducing vulnerability . . .
- Build in flexibility . . .
- Resilience can be a competitive advantage . . .



Resilience

Globalization is stretching supply chains at a time when market volatility is on the increase, exposing companies to greater risk.

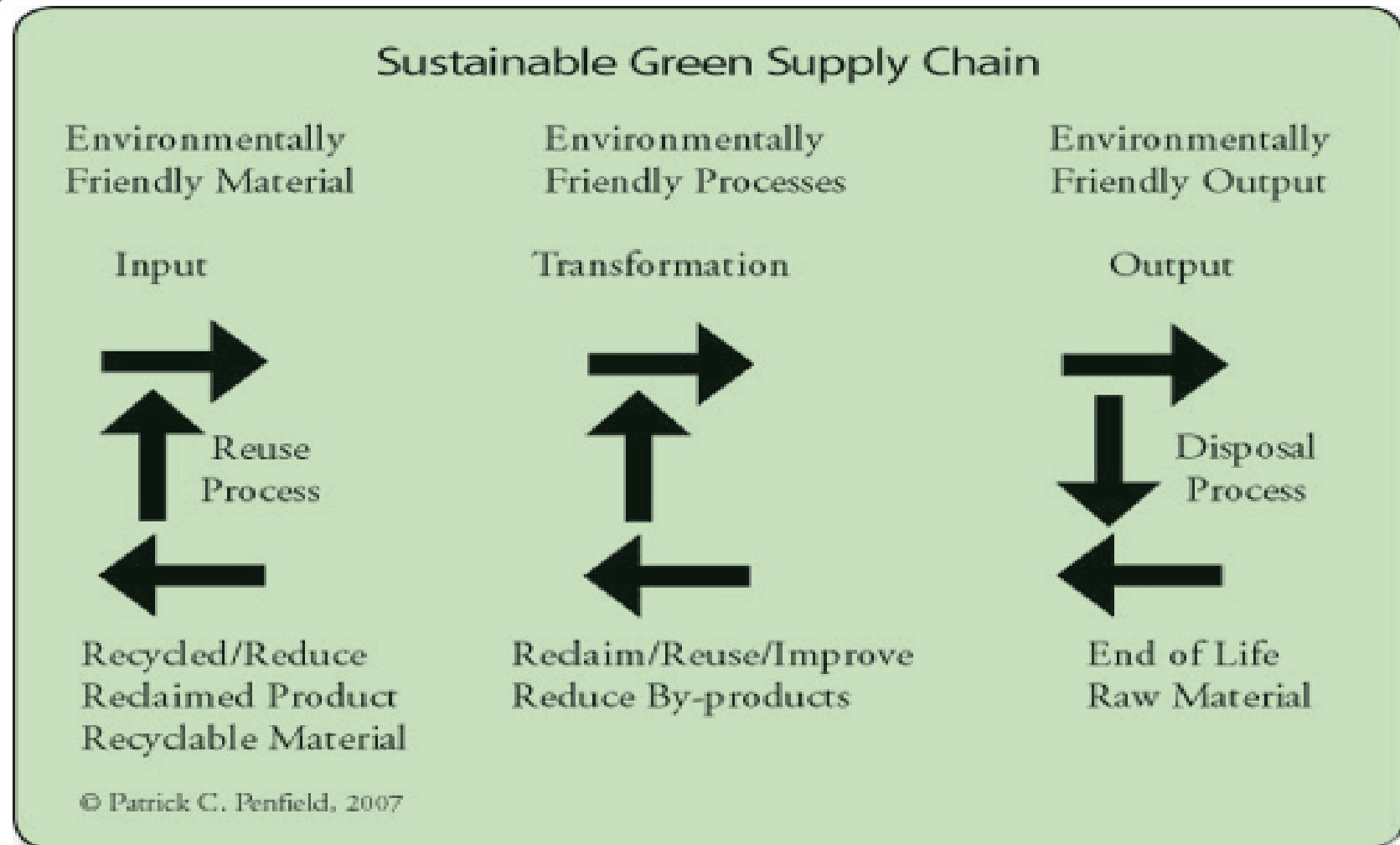
- Resilience, a notion borrowed from material science, represents the ability of a material to recover its original shape following a deformation.
- Resilience can be achieved through redundancy
- Flexible or agile supply chains can help a company not only withstand disruptions by adapting quickly to changing conditions, but also better respond to the day-to-day gyrations of the marketplace.



Sustainability

- The most popular definition of sustainability can be traced to a 1987 UN conference. It defined sustainable developments as those that "meet present needs without compromising the ability of future generations to meet their needs" (WECD, 1987).
- Reducing Costs and Eliminating Waste
- Energy Costs and Conservation

Sustainability



75 % of the Global 100 Companies Issue Sustainability Reports



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KEY ISSUES IMPACTING SUPPLY CHAIN MANAGEMENT

Trust



Financial Markets



Multiple Supply Chains



Managing Relationships



Old-line Management

Information Challenges





Questions?

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www.FreeseInc.com