Present

Supply Chain Management in Turbulent Times

DANTE (LOCKKEEPERS)
8001 ROCKSIDE ROAD
VALLEY VIEW, OH

May 14, 2009
Agenda

- History
  - The Perfect Storm
- Definitions
- The State of Logistics
- Major Indices
  - Economic & Markets
- SCM Trends
- Economic Direction & Impacts
- Financial Impacts of SCM
- Keys to the Future
- Q & A
Supply Chain History

The book of Genesis recorded Joseph was the 1st “Supply Chain Manager” in 1700 B.C.
The Perfect Storm

Crude Oil Prices

Credit Crunch

Recession
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

2008
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
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.**
- 10.1% GDP

**Asia**
- 13-20% GDP

**China**
- 19-22% GDP

**Europe**
- 12-14% GDP

**India**
- 17% GDP

**Japan**
- 11% GDP

**Mexico**
- 14% GDP
### U.S. Logistics Cost as Percent of GDP in 2007

<table>
<thead>
<tr>
<th>Carrying Costs - $ 2.026 Trillion All Business Inventory</th>
<th>$ Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest</td>
<td>103</td>
</tr>
<tr>
<td>Taxes, Obsolescence, Depreciation, Insurance</td>
<td>273</td>
</tr>
<tr>
<td>Warehousing</td>
<td>111</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>487</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transportation Costs</th>
<th>$ Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motor Carriers:</strong></td>
<td></td>
</tr>
<tr>
<td>Truck - Intercity</td>
<td>455</td>
</tr>
<tr>
<td>Truck - Local</td>
<td>216</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>671</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Carriers:</th>
<th>$ Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railroads</td>
<td>58</td>
</tr>
<tr>
<td>Water</td>
<td>38</td>
</tr>
<tr>
<td>Oil Pipelines</td>
<td>10</td>
</tr>
<tr>
<td>Air</td>
<td>41</td>
</tr>
<tr>
<td>Forwarders</td>
<td>30</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>177</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shipper Related Costs</th>
<th>$ Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logistics Administration</td>
<td>54</td>
</tr>
<tr>
<td><strong>TOTAL LOGISTICS COST</strong></td>
<td><strong>1,397</strong></td>
</tr>
</tbody>
</table>
Cost As A Percent of GDP

- 1998: 10.1%
- 1999: 9.9%
- 2000: 10.3%
- 2001: 9.5%
- 2002: 8.8%
- 2003: 8.6%
- 2004: 8.8%
- 2005: 9.5%
- 2006: 9.9%
- 2007: 10.1%
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
Total Business Inventories Rose 8.7 Percent in 2007

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

14 May 2009
Wholesale Vs. Retail Inventories

(Billions of Dollars)

Source: U.S. Department of Commerce, Bureau of Economic Analysis
Inventory to Sales Ratio
Slow Rate of Decline

Source: U.S. Department of Commerce, Census Bureau
Substantially Higher Fuel Prices

Diesel

Jet Fuel

<table>
<thead>
<tr>
<th>Year</th>
<th>Diesel</th>
<th>Jet Fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>2001</td>
<td>$0.50</td>
<td>$0.50</td>
</tr>
<tr>
<td>2002</td>
<td>$1.00</td>
<td>$1.00</td>
</tr>
<tr>
<td>2003</td>
<td>$1.50</td>
<td>$1.50</td>
</tr>
<tr>
<td>2004</td>
<td>$2.00</td>
<td>$2.00</td>
</tr>
<tr>
<td>2005</td>
<td>$2.50</td>
<td>$2.50</td>
</tr>
<tr>
<td>2006</td>
<td>$3.00</td>
<td>$3.00</td>
</tr>
<tr>
<td>2007</td>
<td>$3.50</td>
<td>$3.50</td>
</tr>
</tbody>
</table>
Fuel Efficiency
Ton-Miles Per Gallon

<table>
<thead>
<tr>
<th>Mode</th>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barge</td>
<td>576</td>
</tr>
<tr>
<td>Railroad</td>
<td>413</td>
</tr>
<tr>
<td>Truck</td>
<td>155</td>
</tr>
</tbody>
</table>

Source: Texas Transportation Institute Study, Nov. 2007
Mode Utilization

Barge  Railroad  Truck
Index of Logistics Costs as a % of GDP Over 20 Years

- Inventory
- Transportation
- Total

Major Economic Indices

U.S. Real GDP Growth

Manufacturing Industrial Production Indexes
Non-durables and Durables Industries

ISM Purchasing Managers’ Indexes

Consumer Price Index (% change y/y)
Total and “core” excluding food & energy

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Current Indicators

GDP Growth

Economic Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Inflation %</td>
<td>-0.45</td>
</tr>
<tr>
<td>GDP Growth %</td>
<td>-6.29</td>
</tr>
<tr>
<td>Unemployment %</td>
<td>8.90</td>
</tr>
<tr>
<td>Gold $/ Once</td>
<td>917.00</td>
</tr>
<tr>
<td>Oil $/ Barrel</td>
<td>58.85</td>
</tr>
<tr>
<td>Prime Rate %</td>
<td>3.25</td>
</tr>
</tbody>
</table>

Financial Forecast Center, LLC May 13, 2009
### ISM Index

**MANUFACTURING AT A GLANCE**

<table>
<thead>
<tr>
<th>Index</th>
<th>April</th>
<th>March</th>
<th>Change</th>
<th>Direction</th>
<th>Rate of Change</th>
<th>Trend*(Months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMI</td>
<td>40.1</td>
<td>36.3</td>
<td>3.8</td>
<td>Down</td>
<td>Slower</td>
<td>15</td>
</tr>
<tr>
<td>New Orders</td>
<td>47.2</td>
<td>41.2</td>
<td>6</td>
<td>Down</td>
<td>Slower</td>
<td>17</td>
</tr>
<tr>
<td>Inventories</td>
<td>33.6</td>
<td>32.2</td>
<td>1.4</td>
<td>Down</td>
<td>Slower</td>
<td>36</td>
</tr>
<tr>
<td>Backlog of Orders</td>
<td>40.5</td>
<td>35.5</td>
<td>5</td>
<td>Down</td>
<td>Slower</td>
<td>12</td>
</tr>
<tr>
<td>Exports</td>
<td>44</td>
<td>39</td>
<td>5</td>
<td>Down</td>
<td>Slower</td>
<td>7</td>
</tr>
<tr>
<td>Imports</td>
<td>42</td>
<td>33</td>
<td>9</td>
<td>Down</td>
<td>Slower</td>
<td>15</td>
</tr>
</tbody>
</table>

**OVERALL ECONOMY**

Manufacturing Sector

- Down
- Slower

Institute For Supply Management May 2009

14 May 2009

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Freese & Associates, Inc.
Global Manufacturing PMI rises to new five month high in March

BEIJING (Reuters)
A key gauge of Chinese manufacturing improved in February for the third month in a row as factories restocked in anticipation of an early revival in the economy despite deepening global gloom.

Global Manufacturing PMI Summary
50 = no change on previous month.

<table>
<thead>
<tr>
<th></th>
<th>Feb</th>
<th>Mar</th>
<th>Change</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global PMI</td>
<td>35.8</td>
<td>37.2</td>
<td>+</td>
<td>Deteriorating, slower rate</td>
</tr>
<tr>
<td>Output</td>
<td>33.4</td>
<td>35.2</td>
<td>+</td>
<td>Contracting, slower rate</td>
</tr>
<tr>
<td>New Orders</td>
<td>31.4</td>
<td>35.8</td>
<td>+</td>
<td>Contracting, slower rate</td>
</tr>
<tr>
<td>Input Prices</td>
<td>35.1</td>
<td>34.2</td>
<td>-</td>
<td>Falling, faster rate</td>
</tr>
<tr>
<td>Employment</td>
<td>35.0</td>
<td>35.8</td>
<td>+</td>
<td>Falling, slower rate</td>
</tr>
</tbody>
</table>
CPI March 2009

Manufactures Index

Federal Reserve Board May 2009
DJI 5 Year Trend

2009 Dow Jones & Company  May 2009
Economic Direction

- **The unemployment rate rose** to 7.6 percent in January, the highest level since 1992.
- **Confidence among U.S. consumers plunged** to a record low in February, signaling spending will slump further as unemployment soars.
- **Spending continues to shrink in 2009**, after having contracted for the last six months of 2008 this represents the first 12-month drop in the postwar era. It was the first time purchases declined by more than 3 percent in consecutive quarters since records began in 1947.
- **U.S. sales of cars and light trucks plunged** to a 9.6 million annual rate in January, the lowest level since 1982.
- **Sluggish industrial production**, general economic weakness, and the credit crunch all contributed to abnormal seasonality of freight flows in 2008. This was then a big step down in volume as the credit crunch took hold and demand remained depressed.
- **After decelerating in 3Q08, freight volumes took a big step down** in 4Q08 as debt markets collapsed in late September and October. The fiscal and monetary policy stimuli have generated little, if any, economic traction; the export mini-boom collapsed as the dollar strengthened and as European and Asian economies quickly slipped into recession; the housing and automotive sectors remained extremely depressed; consumer spending has stalled; and shift of import container traffic from west coast to east coast continues to suppress domestic demand.
How This Translates

Transportation, will be flat or maybe even down because:

• **Volumes are 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 they have ever been will end flat or slightly up,**
  – because pricing has been soft and surcharges were removed.

• **Air Freight continues to have many problems will be down because,**
  – volumes are down,
  – fuel pricing has really hurt economics.

• **Water is down,**
  – both internationally and domestically.
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 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 22.3% of China’s GDP and 17% in India.
Key Drivers to Success

Everyone is under constant pressure to improve performance:

- Developing integrated alliances with customers
- Producing more output with less working capital
- Optimizing use of resources
- Service customers with a synchronized, responsive and low cost supply chain

The supply chains that deliver such value and focus on improvement will see increase market share and revenues.
What’s In It For You

“Relationship management can create 20% to 40% difference on service, quality, cost and other performance indicators.”

93% of CEO’s see their supply chain as a strategic asset

YET

72% of CEO’s have cost reduction as their major supply chain goal
## Best in Class Performance & Potential Savings

<table>
<thead>
<tr>
<th>Industry</th>
<th>Total Revenue Billions</th>
<th>Best in class</th>
<th>Median Logistics Costs</th>
<th>Potential Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemicals &amp; Pharmaceuticals</td>
<td>$641b</td>
<td>3.9%</td>
<td>11.2%</td>
<td>$46.8b</td>
</tr>
<tr>
<td>Computers &amp; Electronic</td>
<td>$356b</td>
<td>4.0%</td>
<td>8.3%</td>
<td>$15.3b</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>$470b</td>
<td>3.3%</td>
<td>8.3%</td>
<td>$23.5b</td>
</tr>
<tr>
<td>Consumer Packaged Goods</td>
<td>$3,231b</td>
<td>4.9%</td>
<td>9.2%</td>
<td>$138.9b</td>
</tr>
<tr>
<td>Defense &amp; Industrial</td>
<td>$1,991b</td>
<td>4.3%</td>
<td>10.2%</td>
<td>$117.5b</td>
</tr>
</tbody>
</table>

**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 University 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!!
There Are No Silver Bullets

SKU
ECR
WMS
LTL
DSD
3PL
RFID
SCOR
ASN
FOB
RORO
TEU
C-TPAT
EDI
VMI
CPFR
CWT

14 May 2009
Supply Chain Management in Turbulent Times
The Future

- The Economy

- Oil Prices

- Shrinking Capacity
KEY ISSUES IMPACTING SUPPLY CHAIN MANAGEMENT

Trust

Financial Markets

Multiple Supply Chains
Managing Relationships

Old-line Management

Information Challenges
Questions?

Freese & Associates, Inc.
www.FreeseInc.com