2004 Transformation Technology Survey
Enabling Vision, Velocity, and Value
Today’s Panel

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A Special Thanks

The research team would like to acknowledge and thank the following two individuals for their assistance and work on this study.

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Georgia Southern University
Overview

• Introduction
• A Look Back: Drivers of World Class Supply Chain Management
• State of Supply Chain Connectivity
• Getting to Adaptive Supply Chain Management
• Enabling Vision, Velocity and Value
  – Microsoft
  – CRST Logistics Inc.

Participants Reflect the Marketplace

- Web survey was conducted in **July 2004**
  • **374 respondents** from 10 sectors represented in this study
  • Sample represents over **$52 billion** in logistics expenditures

  ! **Case studies** - CRST Logistics, Inc.
  Dell Inc.
  Nissan North America, Inc.
  Samsung Electronics Co.
  Luxury Cruise Lines
Industries Participating In This Study

Survey Results Reflect the “Giants”
Respondent’s Position in the Supply Chain

- Tier 2 Supplier: 9%
- Tier 1 Supplier: 11%
- Retail Firm: 19%
- Distributor / Wholesaler: 21%
- End Customer: 22%
- Manufacturer / Assembler: 29%

Percent of Respondents

A Look Back
The Drivers of World Class Supply Chain Management

- Collaboration
  - Share real-time data with key customers, suppliers, and partners
  - Align individuals and organizations
  - Standardize processes and practices

- Optimization
  - Implement new tools and processes
  - Eliminate inefficiencies
  - Leverage cost savings across communities

- Connectivity
  - Standardize applications and platforms
  - Foster many-to-many collaboration
  - Enable trade exchange

- Execution
  - Improve transportation, distribution, inventory, and order management
  - Enable financial settlements
  - Measure performance results

- Speed
  - Increase responsiveness
  - Improve adoptability
  - Access information in real time

- Visibility
  - Track inventory flow
  - Update order status in real time
  - Manage incidents

Building Connectivity to Enable Visibility

- Connectivity
  - Planning and Execution Infrastructure
  - Software
  - Hardware
“Connected” Supply Chains

“The future of manufacturing belongs ‘connected’ organizations that are able to gather critical information and provide it to the right people in the right format.”

– Charles Johnson, Worldwide Managing Director
  Manufacturing Industry Unit at Microsoft

State of Supply Chain Connectivity
IT Environment for Transaction Management

<table>
<thead>
<tr>
<th>Environment</th>
<th>Percent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centralized</td>
<td>49.0%</td>
</tr>
<tr>
<td>Two - Tier</td>
<td>15.0%</td>
</tr>
<tr>
<td>Three - Tier</td>
<td>18.0%</td>
</tr>
<tr>
<td>Many - Tier</td>
<td>18.0%</td>
</tr>
</tbody>
</table>

Outsourcing Supply Chain Technology Is Limited

- Totally Outsourced: 4%
- Greater than 50%: 10%
- 26% - 50%: 14%
- 11 - 25%: 13%
- <10%: 30%
- 0%: 28%
Integration of IT Strategy With SCM Strategy Is Lagging

Supply Chain Technology Affects Decision Making
How Do You Primarily Communicate With Suppliers and Customers Regarding Order Status?

- Email: 40% for Customers, 27% for Suppliers
- EDI: 16% for Customers, 10% for Suppliers
- Phone: 15% for Customers, 10% for Suppliers
- Internet via suppliers' web portal: 9% for Customers, 9% for Suppliers
- B2B transaction information: 9% for Customers, 9% for Suppliers
- FAX: 6% for Customers, 2% for Suppliers
- Sales / customer representative: 3% for Customers, 3% for Suppliers
- Mail: 1% for Customers, 1% for Suppliers

Completed Implementations - Technology / Software / Business Practices

- Inventory management: 53% for WMIS, 41% for MRP, 44% for ERP, 46% for Order fulfillment, 44% for MRP, 46% for ERP, 44% for Order fulfillment
**Distribution** is primarily managed by commercially available technology.

- Commercially purchased software package: 47% of respondents.
- Software developed in-house: 20%.
- Spreadsheets: 13%.
- Third party provider: 12%.
- Manual: 5%.
- Other: 5%.

**Tools and Methods Used for Transportation Management**

- Commercially purchased software package: 30% of respondents.
- Third party provider: 29%.
- Software developed in-house: 14%.
- Spreadsheets: 14%.
- Manual: 11%.
- Other: 2%.
Visibility Is A Critical Capability

<table>
<thead>
<tr>
<th>Internal visibility of orders</th>
<th>3.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global visibility of orders</td>
<td>2.7</td>
</tr>
<tr>
<td>Tracking inbound shipments</td>
<td>2.6</td>
</tr>
<tr>
<td>Domestic visibility of orders</td>
<td>2.5</td>
</tr>
<tr>
<td>Vendor compliance</td>
<td>2.5</td>
</tr>
<tr>
<td>Tracking outbound shipments</td>
<td>2.4</td>
</tr>
<tr>
<td>Alerts to late or delayed shipments</td>
<td>2.2</td>
</tr>
<tr>
<td>Internal visibility of orders</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Average of All Responses

Internal Visibility Is Improving Slowly

<table>
<thead>
<tr>
<th>High visibility</th>
<th>2</th>
<th>Somewhat visible</th>
<th>4</th>
<th>Very limited visibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finished goods inventory at field DC</td>
<td>2.09</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finished goods inventory at plant</td>
<td>2.27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer order status information</td>
<td>2.29</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outbound shipment status</td>
<td>2.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production schedules</td>
<td>2.65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vendor order status information</td>
<td>2.89</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand forecasts</td>
<td>2.91</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inbound shipment status</td>
<td>3.01</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Average of All Responses
### How Often Is The Following Type Of Information Updated?

<table>
<thead>
<tr>
<th>Information</th>
<th>Real-Time (or near real time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Order Status Information</td>
<td>52%</td>
</tr>
<tr>
<td>Outbound Shipment Status</td>
<td>45%</td>
</tr>
<tr>
<td>Finished goods Inventory at field DC</td>
<td>42%</td>
</tr>
<tr>
<td>Finished Goods Inventory at Plant</td>
<td>38%</td>
</tr>
</tbody>
</table>

### How Often Is The Following Type Of Information Updated?

<table>
<thead>
<tr>
<th>Information</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inbound Shipment Status</td>
<td>54%</td>
</tr>
<tr>
<td>Outbound Shipment Status</td>
<td>45%</td>
</tr>
<tr>
<td>Vendor Order Status Information</td>
<td>40%</td>
</tr>
<tr>
<td>Production Schedules</td>
<td>38%</td>
</tr>
</tbody>
</table>

Note: Information item “Demand Forecasts” are most often updated on a Weekly basis, according to respondents.
The Value of **Internal** Real-Time (Or Near Real-Time) Information

### Top 5 Responses

- **To reduce costs (e.g., reduce inventory levels and/or inventory obsolescence)**: 65%
- **To analyze supply chain performance**: 66%
- **To improve order and inventory accuracy**: 68%
- **To improve internal operating efficiencies**: 75%
- **To improve customer service**: 85%

### External Visibility For Suppliers And Customers Lags Greatest For Inventory Levels

<table>
<thead>
<tr>
<th>Information</th>
<th>High visibility</th>
<th>2</th>
<th>Somewhat visible</th>
<th>3</th>
<th>Very limited visibility</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer order status</td>
<td>2.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outbound shipment status</td>
<td>2.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finished goods inventory at field DC</td>
<td>3.14</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vendor order status information</td>
<td>3.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inbound shipment status</td>
<td>3.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production schedules</td>
<td>3.46</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand forecasts</td>
<td>3.47</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finished goods inventory at plant</td>
<td>3.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Average of All Responses: 3.34
The Value of External Real-Time (Or Near Real-Time) Information

**Top 5 Responses**

- To improve internal operating efficiencies: 50%
- To analyze supply chain performance: 59%
- To enable collaboration for planning purposes: 63%
- To create/improve supply chain visibility: 80%
- To improve customer service: 80%

Percent of Respondents

The Focus Is Clear: Reducing Costs and Increasing Customer Satisfaction

**2004 Objective/Goal for the Division or Business Unit**

- Decrease Time to Market: 3%
- Maximizing Asset Utilization: 7%
- Improve Flexibility to respond to Market Requirements: 13%
- Maximizing Profitability: 21%
- Increasing Customer Satisfaction: 26%
- Reducing Costs: 30%

Percent of Respondents
Future Effort ...

Technology / Software / Business Practices Being Considered

Supply Chain Technologies Least Likely For Investment in 2005
High Priority Areas For Supply Chain Technology Investments In 2005

<table>
<thead>
<tr>
<th>Area</th>
<th>Percent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise resource planning (ERP)</td>
<td>31%</td>
</tr>
<tr>
<td>Supplier integration</td>
<td>32%</td>
</tr>
<tr>
<td>Warehouse management system (WMS)</td>
<td>33%</td>
</tr>
<tr>
<td>Demand planning</td>
<td>35%</td>
</tr>
<tr>
<td>Customer relationship management (CRM)</td>
<td>38%</td>
</tr>
</tbody>
</table>

It’s The Budget...

Major Obstacles Affecting Supply Chain Technology Spending This Year

<table>
<thead>
<tr>
<th>Obstacle</th>
<th>Percent of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement/reward system has not been changed</td>
<td>6%</td>
</tr>
<tr>
<td>Insufficient support from corporate IT</td>
<td>7%</td>
</tr>
<tr>
<td>Current state of supply chain technology development</td>
<td>8%</td>
</tr>
<tr>
<td>Lack of clear direction in terms of supply chain technology needs</td>
<td>18%</td>
</tr>
<tr>
<td>Business processes need to reengineered</td>
<td>26%</td>
</tr>
<tr>
<td>Budget</td>
<td>35%</td>
</tr>
</tbody>
</table>
Getting to Adaptive Supply Chain Management

Implications – *Turning Data Into Action*

- The Levels of Adaptive Supply Chain Execution (ASCE) -

- Data Collection (e.g., RFID)
- All of the opportunities from supplier to end to distributor to customer are still being defined.

- Automated Decision-Making
- Where it’s going, intelligent / learning systems to assist in execution.

- Exception Management
- Predominant focus of last 5 years; a natural for the first RFID “wave”.

- Visibility
- Core tactical tools in place such as WMS, TMS, OMS, These need to be supportive for the Requirements of SCEM and RFID.

- Planning & Execution Infrastructure
- Moving to more sophisticated algorithms, but more data needed for the systems.

- Data Synchronization
- Data amounts, quality, cleanliness and accuracy are increasingly critical.
You are only as good as your last order fulfilment metric!
Visibility, through connectivity, must extend across the enterprise and onwards to suppliers, 3PL providers, and customers.

The Capgemini Perspective

- “Show me the Money” = “Show me the Data”
- Data is the “currency of exchange” between supply chain participants, and money is in the data
- Can only be accomplished through the access, availability, and accuracy of data
- You are only as good as your last order fulfillment metric (as viewed by the customer)
The Capgemini Perspective

- Data — through seamless connectivity — is required to address such key business issues as compliance, cost reduction, strategy, and business transformation.

- The wild card in all this is the alignment, accuracy, and standardization of data, a.k.a., global data synchronization (GDS).

- Dependent on a foundation of strong planning and execution tools and data access through BI tools.

The Capgemini Perspective

- The ability for these tools to be true enablers is totally dependent on the data acquired through both internal and external connectivity.

- Future vision of this connectivity will be focused around the seamless merging of data from CRM, SCM, and the broad variety of technologies and processes for harvesting and analyzing specific data to make sound business decisions (Business Intelligence, BI).

- These areas combined will be the enablers to help you move your static enterprise to one that is adaptive and connected — and to where both the data and the money are.
Moving Towards a “Connected” Supply Chain

“Manufacturers can best achieve connectivity throughout the enterprise and their supply chain by implementing solutions that take advantage of the current, commonly available software systems they already have in place. Leveraging these systems allows manufacturers to easily connect to supply chain partners, enabling a level of communication and collaboration that improves their ability to make informed decisions and stay competitive.”

– Charles Johnson, Worldwide Managing Director, Manufacturing Industry Unit at Microsoft.
To respond to industry changes in real-time — including new competitors, standards, and markets — today’s manufacturers can not afford not to be connected across the enterprise. To be truly successful, today’s manufacturers must also connect to suppliers, thereby sharing the critical information needed to meet and exceed market demands.

- The goal: Enable connectivity to optimize the supply chain.

Unfortunately, some companies are hindered in this effort because of the numerous technology systems throughout their organization, most of which do not talk to each other.

- Most companies are not able to spend what they believe is required to replace their legacy systems with updated technology.

Manufacturers need to reach a “connected” state, while letting IT organizations generate greater returns on the assets they already have in place.

- Leveraging existing technology implementing technologies and solutions that easily integrate with existing technology, and using new tools to improve connectivity.
- For example leveraging a platform that uses Industry Standards for Integration helps create the level of connectivity manufacturers need. By using XML Web services to expose, share, and integrate data on server and client products — including legacy systems a company can achieve connectivity at a lower overall cost.

### Business benefits can be significant

- Increased Velocity in decision making
- Overall Optimization
- Inventory reduction
- Increase Inventory Accuracy
- Increased agility, ability to respond to demand fluctuations

We firmly believe that manufacturing companies that understand the relationships between technology, supply chain connectivity, and the power of their entire value chain will be the winners in the competitive landscapes to come.
Case Study - Samsung Electronics Co., Ltd.

Korean-based Samsung Electronics Co., Ltd. maintains facilities around the world, including 24 production subsidiaries, 26 sales subsidiaries, and 20 branch offices. Plus, they outsource manufacturing and distribution to local business partners.

The Solution
Samsung deployed the Global Samsung Business Network (GSBN), a worldwide collaborative portal system. GSBN lets Samsung and its overseas subsidiaries, partners, and customers have a real-time view of the status of purchase orders, sales, shipping, and inventory.

- The new portal gives Samsung, its subsidiaries, and its partners faster and fuller access to real-time data for decision making. Access to inventory and sales data and projections is greater, deeper, and more accurate. Customers are kept informed about how product availability compares to their weekly demand forecasts, resulting in better customer satisfaction.

- The system also provides a one-stop source of information, such as product arrival date, marketing cost analysis, customs service, and banking. And because the portal was developed quickly and economically, and runs with relatively minor operational support costs, it contributes to IT's reduced total cost of ownership on an ongoing basis.

The Benefits
- Samsung expects the portal's direct benefits from additional profits, reduced sales costs, and reduced site development costs will amount to US$1.3 million per year. Indirect benefits from enhanced demand forecasting, reduced inventory costs, and enhanced delivery forecasting are expected to total US$1.6 million per year, for a combined annual benefit estimated at US$2.9 million. With an annual return on investment of 235%, Samsung expects the payback on this investment to take about four months.
Mid-Market Logistics Issues

- Increasing logistics costs
- Increasing pressure of collaborative relationships
- Limited visibility into the supply chain
- Limited professional logistics management experience
- Lack of current technology and limited budgets

Mid-Market Logistics Needs

- Low cost technology solution
- Ability to tailor solution to ever changing needs
- Collaborative solution
- Value driven solution
Mid-Market Logistics Solution

- Scalable resources
  - People
  - Processes
  - Technology
- Integrated solution that connects supply chain
- Logistics provider that can deliver low cost services
- Let provider carry burden of technology and operations

For Further Information About the Study

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Dept. of Marketing & Logistics  
Direct: (865) 974-1658  
mholcomb@utk.edu  
http://www.maryholcomb.com
Other research of interest . . . . . .

Joint Research Studies Presented at CLM

**Tuesday 1:30-3:00pm**
Level 200, Room 201A
Track Session 3D

*Third Party Logistics:*
Results and Findings from the 2004 Ninth Annual Study

**Monday 1:30-3:00pm**
Level 200, Room 201A
Track Session 3B

*Logistics Trends & Issues:*
Thirteenth Annual Survey

**Monday 1:30-3:00pm**
Level 100, Room 102A/B
Track Session 24B

*Connectivity:*
Enabling Visibility in the Adaptive Supply Chain
Questions ?