MIT Sloan School of Management
UPS - MIT

Advisor: Professor Gabriel Bitran
March, 2006
Agenda

- How are supply chain governance structures changing?
- What can lead logistics providers (LLPs) do to adapt to emerging governance structures?
- Special Case: Buyer-centric Networks; and related opportunities for LLPs
- Special Case: Emergence of systems integrators and related governance structures
- Future research directions for LLPs
The Future of Commerce

Convergence

Information
Goods
Funds
Channel shift from traditional to nontraditional retail is driving increased package deliveries for small package delivery services (eg. UPS, USPS)

**Push**
- Manufacturer
- Wholesaler or Distributor
- Retail Store
- End Consumer

**Pull**
- Manufacturer
- Wholesaler or Distributor
- Retail Store
- End Consumer

**Push vs. Pull: Implications on Goods Movement**
What is happening on the supply side?

- Increased role ambiguity
- Need for increased coordination between firms
- Space for new set of supply chain services focused on coordination, or collaboration
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Role of LLPs in Emerging Governance Models

• Objective

– Identify the changes in supply chain governance and logistics / coordination practices

– Understand the evolution and future of services in supply chains

– Understand the potential roles that lead logistics providers could play in the emerging relationships between buyers and suppliers
## Interviews

### Companies
- The Gillette Company
- GM
- Bose
- GE
- Color Kinetics
- PCI
- Nortel Networks
- Agilent Technologies
- Qualcomm
- Nokia
- Sun Country
- Sunscreen
- Hardy Machine & Design Inc.
- Boston Fuel Cells

### Others
- Gartner
- UCCnet
- Cap Gemini Ernst & Young
- Exiros
- UPS
- SAP
- DHL
- MIT Sloan
- MIT Center for Transportation & Logistics
**Lead Logistics Provider**

<table>
<thead>
<tr>
<th>Needs</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Truly global LP</td>
<td>• Consolidated network design &amp; visibility</td>
</tr>
<tr>
<td>• Local supply chain expertise</td>
<td>• Consistent global pricing &amp; service levels</td>
</tr>
<tr>
<td>• Integrated, comprehensive set of services via single point of access</td>
<td>Lead Logistics Relationship</td>
</tr>
<tr>
<td>• Few major LP</td>
<td>• Few major LP</td>
</tr>
<tr>
<td>• Long-term strategic partnership</td>
<td>Long-term strategic partnership</td>
</tr>
</tbody>
</table>

**Country A**

**Company**

**Country B**

**Local LP**

**LLP**
IT Solution Provider

Role as SC Visibility Enabler

- Customer demand fluctuations + SC variations requires full SC visibility
- SC visibility in turn requires integrating Demand, Inventory, and Transportation (DIT) Visibility

From “Delivery” to “Listen-Check-Delivery” role
## Balance of Power

<table>
<thead>
<tr>
<th>Needs</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Small and medium OEMs</td>
<td>• Inbound for small OEMs</td>
</tr>
<tr>
<td>- Enforce on-time delivery</td>
<td>- CM → OEM → Distributor → Retailer</td>
</tr>
<tr>
<td>• Large consumer electronic OEMs</td>
<td>• Outbound for large OEMs</td>
</tr>
<tr>
<td>- Better channels’ inventory management to facilitate push of new</td>
<td>- CM → OEM → Distributor → Retailer</td>
</tr>
<tr>
<td>products</td>
<td></td>
</tr>
</tbody>
</table>

CM: Contract Manufacturers  
OEM: Original Equipment Manufacturer
### SMEs’ Needs

<table>
<thead>
<tr>
<th>Needs</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sell excess production capacity</td>
<td>CS → CM → OEM</td>
</tr>
<tr>
<td>• Incidental sales force</td>
<td>CS: Component Supplier</td>
</tr>
<tr>
<td>• Financing</td>
<td>CM: Contract Manufacturers</td>
</tr>
<tr>
<td>• Increased sourcing scope</td>
<td>OEM: Original Equipment Manufacturer</td>
</tr>
</tbody>
</table>

**Abbreviations:**
- CS: Component Supplier
- CM: Contract Manufacturers
- OEM: Original Equipment Manufacturer
Solution Space

IT Solutions Provider
- SCCM, TMS, WMS, ITLS
- RFID
- “Listen-Check-Delivery”

Balance of Power
- Balance of power for small OEMs
- Balance of power for large OEMs

SMEs’ Needs
- Financing
- Sell excess production capacity
- Increased sourcing scope
- Incidental sales force

LLP
- Truly Global Services
- Local SCM expert
- Integrated Services
- Single point of contact
- Fewer 3PLs
- Long-term strategic partnership

Estimated Time to Market
- 1-2 years
- 5 years
- 10 years

Estimated Time to Market

Balance of power for small OEMs

Balance of power for large OEMs

Financing

Sell excess production capacity

Increased sourcing scope

Incidental sales force

IT Solutions Provider

SMEs’ Needs

Estimated Time to Market
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Buyer-Centric Value Network

- **First-tier**
  - Strategic Suppliers

- **Second-tier**
  - Non-strategic suppliers

- **Third-tier**
  - Non-strategic suppliers
How can LLPs contribute in a Buyer-Centric Network?

The market wants LLPs to provide the following customer focus and services:

- Be neutral players
- Be able to serve the global marketplace
- Have a multilateral approach
- Know customers’ business at the production-processes level
- Develop strategies around industry, market, and customer segments
- Provide global services consistent with customer expectations
- Be able to deal effectively with the issues of customs and expediting materials
Value Drivers—Structural Change for SC Players

- Working Capital
- Visibility
- Velocity

From linear to buyer-centric value network (VN)
Issue: Obstructed Vision of Logistics Providers

- Working Capital
- Visibility
- Velocity

Logistics Providers

Value Network

Buyers: VN Leaders

Suppliers
Next Steps for LLP: Listen-Check-Deliver Model to Deliver SC Visibility

- Working Capital
- Visibility
- Velocity

Logistics Providers

Buyers: VN Leaders

Value Network

Suppliers

Buyers:

Logistics Providers

Sellers:

Loaders

LP

Goods

Delivery/Transportation

Check/Inventory

Purchasing Order

Sales Order

Listen/Demand

Buyers: VN Leaders

Value Network

Suppliers

Logistics Providers

Sellers:

Loaders

LP

Goods

Delivery/Transportation

Check/Inventory

Purchasing Order

Sales Order

Listen/Demand
Drivers, Vision, and Relationships Within the Value Network

Neutral Actor VN

Non-Neutral Actors VN

Buyer’s Vision Obstructed by:
1. Separation of inbound and outbound logistics
2. Not process-driven and unable to efficiently distribute benefits
3. Unable to envision an extended enterprise
4. Unable to define Service Level Agreements

Buyer’s Drivers

SUPPLIER

Logistics Supplier

CLIENTS
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Networks with Prominent Systems Integrators
(Mini-Maestro Model)

First-tier
Strategic Suppliers

Second-tier
Non-strategic suppliers

Third-tier
Non-strategic suppliers

Systems Integrator Role
(Mini-Maestro Model)
Emergence of Systems Integrators: The Flextronics Story

Source: Annual SEC Filings by Flextronics Inc., 2004 and 2000
Emergence of Systems Integrators

EMS Industry Growth 1998--2003 ($US Billion)

- North America (47%)
- Europe (160%)
- Asia (430%)
- Other (224%)
- Total (145%)

### How can supply chain players reach out?

<table>
<thead>
<tr>
<th></th>
<th>Suppliers</th>
<th>Customers</th>
<th>3rd Party Logistics</th>
</tr>
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<tr>
<td><strong>What they can provide us?</strong></td>
<td>• Information on capacity&lt;br&gt;• Information on new products&lt;br&gt;• Real-time collaboration</td>
<td>• Information on demand as it evolves&lt;br&gt;• Flexibility in contracts&lt;br&gt;• Greater involvement in decision-making</td>
<td>• Be more proactive instead of reactive&lt;br&gt;• Be a stakeholder in the decision-making process</td>
</tr>
<tr>
<td><strong>What we can provide them?</strong></td>
<td>• Flexibility in contracts?&lt;br&gt;• Advance information on needs and demands&lt;br&gt;• Real-time collaboration</td>
<td>• Better on-time availability&lt;br&gt;• Lower costs through better planning</td>
<td>• Greater responsibilities and incentives from close participation</td>
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<tr>
<td><strong>Stake in supply chain improvements</strong></td>
<td>• Improved Planning through reduced uncertainty&lt;br&gt;• Lower costs through better planning and collaboration</td>
<td>• Increased availability of end-products&lt;br&gt;• Increased responsiveness to needs of end-customers</td>
<td>• Increased transparency and visibility into supply chain&lt;br&gt;• Global reach of decision-making</td>
</tr>
</tbody>
</table>

**Stake in supply chain improvements**
- Improved Planning through reduced uncertainty
- Lower costs through better planning and collaboration

**Suppliers**
- Information on capacity
- Information on new products
- Real-time collaboration

**Customers**
- Information on demand as it evolves
- Flexibility in contracts
- Greater involvement in decision-making

**3rd Party Logistics**
- Be more proactive instead of reactive
- Be a stakeholder in the decision-making process
- Greater responsibilities and incentives from close participation
# The Emergence of Supply Chain Services: Cross-Section Data

<table>
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Data for chart partially based on: “Hoover’s Online Database”
Agenda / Questions

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Research Directions

- Disintermediation issues pose several challenges for the effective planning and control of the distribution function – planning of fleet sizes, scheduling of the delivery process, and customer density management, among others.

- How can we achieve greater visibility into the supply chain without expensive redesign of critical processes while
  - identifying critical data required for collaborative decision-making
  - finding a fit with emerging governance structures

- Modeling the role of the LLPs in the “Listen-Check-Deliver” process
Research Directions

- How can LLPs partner with, and learn from systems integrators or mini-maestros?

- What are the implications of vertical disintegration of the manufacturing process, on the reverse logistics (for example in the computer industry), and what is the role for LLPs in this space?

- How can LLPs and/or systems integrators partner and assist SMEs operating on the periphery of supply chains; what should be the incentive and reward mechanisms?

- How should the LLPs change to be eligible for participating in the emerging governance structures?

- What is the value of technologies such as RFID to improved decision making in dynamic environments?
Research Directions

- What strategy should the LLPs follow to penetrate international markets?

- Can the LLPs be a catalyst for the standardization of IT solutions in the supply chain management marketplace?

- To what extent must LLPs understand the production or service delivery process of their customers?

- What are the organizational implications if LLPs develop industry-sector focused strategies for designing and delivering improved supply chain services.