The Relationship with Large Enterprises in the Supply Chain

Malcolm Walker
27th May 2010
Agenda

→ Who’s Mal Walker
→ About Logistics Bureau
→ What is Supply Chain Management?
→ What are its components?
→ Supply Chain Models
   - Retail
   - Wholesale
   - Direct
→ Inventory Management
→ Inventory Strategies
→ JIT, VMI, EOQ
→ Collaboration & Partnerships
→ Benchmarking
→ Multiple Sourcing
→ Third Party Logistics
**Qualifications & Background**
- Cert ME
- B Bus (Admin and Operations) (UTS)
- Grad Dip Transport and Logistics (RMIT)

**Key Skills**
- Distribution Centre and Facility location
- Warehouse Design
- 3rd Party Logistics
- Inventory Management (Vendor and Owner Managed and Postponement Strategies)
- Network Planning and Modeling
- Surveys and Feasibility Studies
- Project Management

**Relevant Experience**
- 30 years operational and consulting experience

- Has worked with:
  - Colby Handling Systems (now Dematic) building and implementing materials handling systems in both Australia and South East Asia.
  - TTC – Implementing VAM and JIT strategies to Australian industry
  - Peter Breed and Partners – Management Consultants
  - Symonds Henderson – Logistics and Supply Chain Consultants
  - DHL Supply Chain – Third Party Logistics
  - Logistics Bureau – Supply Chain Consultants

Clients: Rheem, George Weston Foods, Energex (Qld), Fuji Xerox, Toll, Olympus, THP Vietnam, Dept Families and Communities (Adel), EAC (Jakarta), Gold City Footwear (Bangkok),
Logistics Bureau Introduction

Logistics Bureau is the largest Logistics and Supply Chain specific consulting business in the Region and specialises in all aspects of Supply Chain from source to consumer.

→ The company was founded in 1997 by and is owned by, Rob O’Byrne, who remains the Group Managing Director.
→ The company has now expanded across the Asia Pacific Region and incorporates the following businesses:
→ For businesses looking for increased Competitive Advantage, Logistics Bureau provides direction and support in driving improved profitability, improved customer service and increased Supply Chain flexibility.
→ We do this by:
  ─ Ensuring that Supply Chain & Logistics strategies are aligned with business goals
  ─ Improving sales with higher product availability to the customer
  ─ Reducing working capital
  ─ Reducing the cost of goods sold (COGS)
  ─ Reducing the costs of doing business (CODB)
  ─ Elimination of waste
  ─ Developing and executing sound improvement plans

13 years
1,000+ projects in 18 countries

www.logisticsbureau.com
WHAT IS LOGISTICS?
WHAT IS SUPPLY CHAIN MANAGEMENT?
What is Logistics vs Supply Chain Management

The Academic perspective..

Logistics

→ That part of the supply chain process that plans, implements, and controls the efficient, effective flow and storage of goods, services, and related information from the point of origin to the point of consumption in order to meet customers’ requirements.

→ Council of Supply Chain Management Professionals 2010

Supply Chain Management

→ The planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies.

→ CSCMP 2010

→ The integration of key business processes from end user through original suppliers, that provides products, services and information that add value for customers and other stakeholders.

→ D Lambert, M Cooper & J Pugh 1998
What is Supply Chain Management?

The practitioners perspective… What suppliers, manufacturers, wholesalers, retailers and customers want?

- The electronic and physical management of materials, goods and services from point of origin to point of consumption, at the lowest total cost, with:
  - Trace ability;
  - Efficiency;
  - Visibility;
  - Timeliness.

- Plus anyone who has ever purchased something, and/or attempted to manage a supply chain and/or logistics process.

- Mal Walker
The Evolution of Supply Chains

Supply-driven Chain

- 1980: Build to forecast
- 1985: Early build to order (Dell)
- 1990: JIT
- 1995: Supplier Park

Process Optimisation

Supply Chain Optimisation

- EDI

Lean Manufacturing

( minimise inventory, eliminate waste)

Demand-driven Value Chain

- 2005: ERP Systems
- 2010: High visibility Systems Dynamic Supply Chains

Agile Supply Chain

(increase responsiveness)

1 Trademark registered by Accenture in 1996, with Modifications by M Walker 2010
The Integrated Supply Chain

Material Flow
Source  Make  Store  Ship  Store  Pick/Pack  Transport  Deliver

Information Flow
Demand  Event Mgt  Dispatch  Tracking  Receiving  WMS  PODs  Cust Info
TYPES OF SUPPLY CHAIN
Direct Supply Chain
Supply Chain Networks

1. Align inventory deployment with service
2. Consider fast / slow networks
3. Outsource facilities to maintain flexibility
4. Review transport modes
5. Monitor network performance
Case Study: Australian Heater Manufacturer
8 DC Network

- This map depicts the distance between customers and the DC’s that service them.

Distance is coloured according to the legend below.

Customer Isochrones are used to consider service levels and transport lead-times across global networks.

A relatively small proportion of customer throughput (8%) is transported greater than 400 kilometres, highlighting the need to understand the true ‘cost to serve’ in these instances.
Re Modelled Network to 3 DCs and 2 Satellites

This map depicts the distance and flows between the customers and the DC’s that service them under the revised scenarios.

Distance is coloured according to the legend below.

Flows have been significantly simplified. Factors influencing this are:

- Reduced stock transfers between sites;
- Strict DC to DC and DC to customer service relationships.
The Supply Chain Processes (Ref SCOR Model)

Five key processes of the Supply Chain

**PLAN**
1) Assess resources
2) Determine demand of product
3) Plan inventory for distribution
4) Plan production
5) Plan material requirements

**SOURCE**
1) Raw materials and Finished Goods
2) Obtain
3) Receive
4) Inspect
5) Hold
6) Issue
7) Payment

**MAKE**
1) Receive materials
2) Manufacture
3) Test product
4) Package
5) Release product distribution

**DELIVER**
1) Order management
2) Compile orders
3) Assemble as required
4) Pick, pack, dispatch
5) Local Delivery or export
6) Get paid

**RETURN**
1) Warranty claims,
2) Defective goods
3) Replacement
4) Inspection
5) Credit process

SOURCE
MAKE
DELIVER
RETURN
Balancing the variables

- Changeover costs
- Capital costs
- Customer Service
- Inventory cost
- Technology
- Short term objective
- Long term objective
- Savings
- High risk
- Low risk
- Transport costs
- Rental
- Labour costs
- ROI
STRATEGIES TO SURVIVE TIMES OF GLOBAL ECONOMIC CRISIS
Which is your SME?
One with a steady stream of Profit, or has it dried up?
Two Key Imperatives of the Supply Chain
You must have these to compete….

➡️ Lowest Total Cost
- Includes:
  - Order Placement Costs incl credit checking
  - Documentation
  - Order Picking
  - Delivery
  - Invoicing and Collection

➡️ Reliable Service Times
- Incoming: Supply in Full On Time (SIFOT)
- Measured from point of first request, until delivered into facility
- Outgoing: Delivery in Full on Time (DIFOT)
- Measured from point of order until signed Proof of Delivery (POD) received
Four Guiding Principles for Logistics and Supply Chain Management

→ One way flow of materials and services.
→ Minimal materials handling.
→ Apply technology wisely, according to volumes.
→ Lowest total cost to supply.

→ Whatever you do, use these principles and they will guide your strategies to deal with adverse Economic conditions.
What do you do when Economic Crisis Looms?

➔ Review your costs:
  - Operating Expenses
  - Selling Expenses
  - Labour
  - Inputs to Manufacturing
  - Inventory (stock) quantities
  - Transportation and delivery charges
  - Import/export Charges
  - Review your Products
    • A, B C analysis
    • Obsolete items
    • Reduce Stock

➔ Tools
  - Time Based Management: to increase the value added ratio
  - Supply strategies
  - Inventory Strategies
    • EOQ
    • Just in Time
    • Vendor Managed Inventory
  - Benchmarking
  - KPIs
  - Design for flow
Time Based Management – Increase the Value Adding (VA) ratio

Initial Supply Chain Time = 4 weeks

Value Adding Ratio = 6 days / 28 = 21%

Improved Lead Time = 1.5 weeks

Value Adding Ratio = 4 days / 10 = 40%

By eliminating wasted time from the process you can improve lead time to market, reduce cost, and increase profits.
Sourcing

1. Balance lead time & cost
2. Currency exposure
3. Balance local v offshore supply
4. Improve supplier performance
5. Improve supply visibility
Sourcing

- Sourcing: Apply Strategic Thinking aligned to products/value that they create.

- Build partnerships with key suppliers.

- Treat your suppliers with respect, but quality and timeliness should never be sacrificed.

- Never have only 1 supplier. Adopt a ‘dual’ sourcing strategy.

- Beware of the costs and conditions of importation and exportation.
Purchasing Product Portfolio
Strategy according to the type of product

<table>
<thead>
<tr>
<th>Complexity of product and process</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leverage Products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Alternative Sources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Substitution possible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competitive Bidding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategic Products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Critical for Product’s cost price</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Dependence on supplier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Performance Based Partnership</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Routine Products</th>
<th>Bottleneck Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Large product variety</td>
<td>• Monopolistic market</td>
</tr>
<tr>
<td>• High logistics complexity</td>
<td>• Larger Entry barriers</td>
</tr>
<tr>
<td>• Labour intensive</td>
<td></td>
</tr>
<tr>
<td>• E Commerce Solutions</td>
<td>• Secure Supply + search for alternatives</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
After separating slow moving and dead stock, it is shown that very compressed group of active products accounted for large percentage of COGS between June 2009 to April 2010. 

A long tail suggested that there is a very high number of slow moving products.

Class A:
- 5% or 143 item codes accounted for 80% of COGS between June 09 to April 10.

Class B:
- 13% or 350 item codes accounted for 15% of COGS, or 5% of sales volume movement between June 09 to April 10.

Class C:
- 82% or 2193 item codes accounted for only 5% of COGS, or 1% of sales volume movement between June 09 to April 10.

Grand Total:
- 100% or 2,686 item codes accounted for 100% of COGS between June 09 to April 10.

Source: [Tab 10 Inventory Homebush D + ANALYSIS.xlsx]Pareto
Inventory Management – The basics

Holding Inventory is necessary to supply your market

→ **Storing inventory costs money**
  - Purchase cost
  - Human capital
  - Finance Costs
  - Management Costs
  - Systems costs
  - Procurement Costs
  - Rent, utilities etc.

→ **General Principles:**
  1. Only hold as much as you need to meet demand.
  2. Order stock in good time to meet the demand of your market.
  4. Review frequently to ensure the ‘right’ amount of stock is held.

→ Companies turn over inventory at different rates:
  - Spare parts 1-6 times per year
  - White and brown goods 4-8
  - Consumer durables 4-8 timers per year
  - Imported Dry foods 6-10
  - FMCG  20-40
  - Fresh Food 30-60
  - The higher number, the better!!
Sales of Quidditch Accessories in April 2010
eg Quaffles, Broomsticks, Golden Snitches, Bludgers etc (Total 30 Products)

What’s this telling you about Hogwartz’s sales?
What are your conclusions?
Any recommendations to Harry and team?

Hogwartz Enterprises

<table>
<thead>
<tr>
<th>Product #</th>
<th>Sales in April</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>2%</td>
</tr>
<tr>
<td>2</td>
<td>450</td>
<td>8%</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>35</td>
<td>1%</td>
</tr>
<tr>
<td>5</td>
<td>29</td>
<td>1%</td>
</tr>
<tr>
<td>6</td>
<td>555</td>
<td>10%</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>0%</td>
</tr>
<tr>
<td>8</td>
<td>1002</td>
<td>18%</td>
</tr>
<tr>
<td>9</td>
<td>658</td>
<td>12%</td>
</tr>
<tr>
<td>10</td>
<td>45</td>
<td>1%</td>
</tr>
<tr>
<td>11</td>
<td>36</td>
<td>1%</td>
</tr>
<tr>
<td>12</td>
<td>982</td>
<td>17%</td>
</tr>
<tr>
<td>13</td>
<td>10</td>
<td>0%</td>
</tr>
<tr>
<td>14</td>
<td>41</td>
<td>1%</td>
</tr>
<tr>
<td>15</td>
<td>253</td>
<td>4%</td>
</tr>
<tr>
<td>16</td>
<td>56</td>
<td>1%</td>
</tr>
<tr>
<td>17</td>
<td>7</td>
<td>0%</td>
</tr>
<tr>
<td>18</td>
<td>75</td>
<td>1%</td>
</tr>
<tr>
<td>19</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>20</td>
<td>56</td>
<td>1%</td>
</tr>
<tr>
<td>21</td>
<td>23</td>
<td>0%</td>
</tr>
<tr>
<td>22</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>23</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>24</td>
<td>75</td>
<td>1%</td>
</tr>
<tr>
<td>25</td>
<td>899</td>
<td>16%</td>
</tr>
<tr>
<td>26</td>
<td>5</td>
<td>0%</td>
</tr>
<tr>
<td>27</td>
<td>26</td>
<td>0%</td>
</tr>
<tr>
<td>28</td>
<td>87</td>
<td>2%</td>
</tr>
<tr>
<td>29</td>
<td>42</td>
<td>1%</td>
</tr>
<tr>
<td>30</td>
<td>99</td>
<td>2%</td>
</tr>
<tr>
<td>Totals</td>
<td>5654</td>
<td>100%</td>
</tr>
</tbody>
</table>

Sales in April

![Sales in April Chart](image_url)
Sales of Hogwartz Enterprises Products in April 2010: Revised

Now what do you conclude? What's your advice to the Hogwartz team?

<table>
<thead>
<tr>
<th>Product #</th>
<th>Sales in April</th>
<th>Percent</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>1002</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>12</td>
<td>982</td>
<td>17%</td>
<td>35%</td>
</tr>
<tr>
<td>25</td>
<td>899</td>
<td>16%</td>
<td>51%</td>
</tr>
<tr>
<td>9</td>
<td>658</td>
<td>12%</td>
<td>63%</td>
</tr>
<tr>
<td>6</td>
<td>555</td>
<td>10%</td>
<td>72%</td>
</tr>
<tr>
<td>2</td>
<td>450</td>
<td>8%</td>
<td>80%</td>
</tr>
<tr>
<td>15</td>
<td>253</td>
<td>4%</td>
<td>85%</td>
</tr>
<tr>
<td>1</td>
<td>100</td>
<td>2%</td>
<td>87%</td>
</tr>
<tr>
<td>30</td>
<td>99</td>
<td>2%</td>
<td>88%</td>
</tr>
<tr>
<td>28</td>
<td>87</td>
<td>2%</td>
<td>90%</td>
</tr>
<tr>
<td>18</td>
<td>75</td>
<td>1%</td>
<td>91%</td>
</tr>
<tr>
<td>24</td>
<td>75</td>
<td>1%</td>
<td>93%</td>
</tr>
<tr>
<td>16</td>
<td>56</td>
<td>1%</td>
<td>94%</td>
</tr>
<tr>
<td>20</td>
<td>56</td>
<td>1%</td>
<td>94.6%</td>
</tr>
<tr>
<td>10</td>
<td>45</td>
<td>1%</td>
<td>95.4%</td>
</tr>
<tr>
<td>29</td>
<td>42</td>
<td>1%</td>
<td>96%</td>
</tr>
<tr>
<td>14</td>
<td>41</td>
<td>1%</td>
<td>97%</td>
</tr>
<tr>
<td>11</td>
<td>36</td>
<td>1%</td>
<td>97%</td>
</tr>
<tr>
<td>4</td>
<td>35</td>
<td>1%</td>
<td>98%</td>
</tr>
<tr>
<td>5</td>
<td>29</td>
<td>1%</td>
<td>99%</td>
</tr>
<tr>
<td>27</td>
<td>26</td>
<td>0%</td>
<td>99%</td>
</tr>
<tr>
<td>21</td>
<td>23</td>
<td>0%</td>
<td>99%</td>
</tr>
<tr>
<td>13</td>
<td>10</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>17</td>
<td>7</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>26</td>
<td>5</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>23</td>
<td>1</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>19</td>
<td>0</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>22</td>
<td>0</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Totals</td>
<td>5654</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

80% of unit sales is from 6 items
15% from 8 items
5% from 16 items

Sales in April

<table>
<thead>
<tr>
<th>Qty Sold</th>
<th>Stock Keeping Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>101112131415161718192021222324252627282930</td>
</tr>
<tr>
<td>B</td>
<td>101112131415161718192021222324252627282930</td>
</tr>
<tr>
<td>C</td>
<td>101112131415161718192021222324252627282930</td>
</tr>
</tbody>
</table>
INVENTORY STRATEGIES
The Forrester Effect (Bullwhip)

Supply chain demand profile

- Consumer demand - low variability
- Retailer demand on warehouse
- Demand on factory

Demand on factory bears no resemblance to demand by consumers.
Inventory Management Models

- Economic Order Quantity
- Just in Time
- Vendor Managed Inventory
- Postponement
Economic Order Quantity

→ Optimises the holding cost and ordering cost
→ Calculates the least total cost to order the product
→ Assumes:
  - Constant Setup costs
  - Constant Lead time
  - Constant Holding costs
→ But, does not take into account daily demand
→ Used by manufacturers not by wholesalers and resellers
→ Is a production ‘push’ strategy
Example: Economic Order Quantity

Balances holding stock, with ordering cost and setup. The problem is that you are forced to hold more stock than is needed per day over the entire ordering cycle.

→ Economic Order Quantity (EOQ)
→ A = Annual usage
→ S = Ordering Cost
→ I = Inventory cost

→ EOQ = \[ \sqrt{\frac{2AS}{I}} \]

→ If
→ A = 1000
→ S = $100
→ I = 25% of item cost
→ Item cost = $40

→ Then:
→ EOQ = \[ \sqrt{\frac{2 \times 1000 \times 100}{40 \times 0.25}} \]

= 141 Units
EOQ – Production Push Model

- Inventory pushed out in batches
- Pushed to wholesaler and then to consumer
- Strength: Good utilisation of capital assets i.e. machinery
- Problem: too much inventory
Just in Time

→ Developed initially by Henry Ford, but refined and mastered by Toyota.
→ Uses customer ‘pull’ philosophy.
→ Goods are delivered to customers and each stage in production, ‘just in time’ for consumption.
→ Its major premise is elimination of wasted time and resources e.g. set up times, and inventory.

→ Used widely in manufacturing industries and service industries.
→ Uses ‘Kanban’ cards or signaling systems.
→ Example: Milk vendors, motor car assembly lines

→ Results
  — Reduces waste and stock in the chain
  — Lower total cost to make and supply
  — Reduces non value adding time
  — Reduces inventory piles

→ Downside: can come unstuck in periods of high demand due to minimal stock piles.
JIT – Demand Pull Model

→ Customer demand pulls stock through the supply chain

→ Strength: low inventory

→ Weakness: In volatile or unpredictable times, lack of stock can result in shortages of supply
Vendor Managed Inventory

→ This concept moves the responsibility of managing the stock from the user back up the chain to the supplier.
→ The user only pays for the stock when the goods are used.
→ The idea is that the vendor delivers the stock to the supplier and owns the goods until the supplier draws from them.
→ Some systems provide for a recipient generated invoice.
→ Where goods are not used, the products can be taken back by the vendor e.g. Bread supply to retail stores.

→ Results: works well for large volume supplies, but it must be set up with the necessary systems to place to track inventory and raise payments on a ‘as used’ basis.
→ Examples: Bread in retail stores, Supply of consumables stock in printing industry, Technology Products.
Vendor Managed Inventory Supply Model

Supply model that relies on the vendor to manage stock to the customer

Strength: end customer has virtually no inventory on its books, even though it will be holding it.

Weakness: Forces stock back to the SME, but overall cost may still be lower.
Factory Gate Pricing Model

- Relies on the customer to pick up goods from the gate of the supplier. (ex works)

- Strength: Customer can save money in transport

- Weakness: SME can be vulnerable to customer manipulation.
Postponement refers to the practice of delaying final assembly or configuration of products until just before they are needed.

Is commonly used in brown and white goods industries, computers, fashion and automotive industries.

Ideal for imported and exported products.

Results: Used to good effect by companies such as Dell, Zara, Fuji Xerox.
BENCHMARKING
Situation Analysis

- Where are you now?
- Where do you want to be?
- What’s the gap & and what’s the cost/benefit?
- How can you close the gap?
Key cost and performance measures were compiled by ABC in the prescribed format which is comparable to companies within the Benchmarking Success data base.

Statistics F2009 YTD Aug-09

Gross Sales (Product charges only but includes discounts)

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL - Gross Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>$256,941,471.12</td>
<td>$253,886,352.87</td>
<td>$510,827,823.99</td>
</tr>
<tr>
<td>Third Party</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL - Gross Sales</td>
<td>$87,717,038.03</td>
<td>$100,740,742.52</td>
<td>$188,457,780.55</td>
</tr>
</tbody>
</table>

Returns (Product Credits)

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL - Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>$36,675,093.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third Party</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL - Returns</td>
<td>$13,259,680.31</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Gross Costs (Includes all costs & recoupments)

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL - Gross Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>$9,742,209.74</td>
<td></td>
<td>$3,969,289.44</td>
</tr>
<tr>
<td>Third Party</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL - Gross Costs</td>
<td>$8,071,183.91</td>
<td></td>
<td>$3,586,268.97</td>
</tr>
</tbody>
</table>

Orders

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL - Orders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>392,795</td>
<td></td>
<td>146,418</td>
</tr>
<tr>
<td>Third Party</td>
<td>299,826</td>
<td></td>
<td>132,585</td>
</tr>
<tr>
<td>TOTAL - Orders</td>
<td>692,621</td>
<td></td>
<td>279,003</td>
</tr>
</tbody>
</table>

Lines

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL - Lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>6,618,294</td>
<td></td>
<td>2,501,263</td>
</tr>
<tr>
<td>Third Party</td>
<td>2,511,578</td>
<td></td>
<td>1,091,207</td>
</tr>
<tr>
<td>TOTAL - Lines</td>
<td>9,129,872</td>
<td></td>
<td>3,592,470</td>
</tr>
</tbody>
</table>

Freight Cost (Outbound)

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL - Freight Cost (Outbound)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>$3,651,064.61</td>
<td></td>
<td>$1,408,907.94</td>
</tr>
<tr>
<td>Third Party</td>
<td></td>
<td></td>
<td>$1,235,638.42</td>
</tr>
<tr>
<td>TOTAL - Freight Cost (Outbound)</td>
<td>$6,400,324.14</td>
<td></td>
<td>$2,644,526.36</td>
</tr>
</tbody>
</table>

Customer Service Costs

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL - Lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>$66,215.64</td>
<td></td>
<td>$26,589.76</td>
</tr>
<tr>
<td>Third Party</td>
<td>$66,216.16</td>
<td></td>
<td>$26,589.90</td>
</tr>
<tr>
<td>TOTAL - Lines</td>
<td>$132,431.80</td>
<td></td>
<td>$53,179.66</td>
</tr>
</tbody>
</table>

Inventory (Skus)

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL - Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>5,858,350</td>
<td></td>
<td>6,055,321</td>
</tr>
<tr>
<td>Third Party</td>
<td>4,063,283</td>
<td></td>
<td>3,434,594</td>
</tr>
<tr>
<td>TOTAL - Inventory</td>
<td>9,921,633</td>
<td></td>
<td>9,489,915</td>
</tr>
</tbody>
</table>

Benchmarking Data

1. Warehouse % of Gross Sales

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>3.8%</td>
<td>4.5%</td>
<td></td>
</tr>
<tr>
<td>Third Party</td>
<td>3.2%</td>
<td>3.6%</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>3.5%</td>
<td>4.0%</td>
<td></td>
</tr>
</tbody>
</table>

2. Cost Per Order

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>$24.80</td>
<td>27.11</td>
<td></td>
</tr>
<tr>
<td>Third Party</td>
<td>$26.92</td>
<td>27.05</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>$25.72</td>
<td>27.08</td>
<td></td>
</tr>
</tbody>
</table>

3. Cost Per Line

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>$1.47</td>
<td>1.59</td>
<td></td>
</tr>
<tr>
<td>Third Party</td>
<td>$3.21</td>
<td>3.29</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>$1.95</td>
<td>2.10</td>
<td></td>
</tr>
</tbody>
</table>

4. Returns as % of Gross Sales

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>14%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>Third Party</td>
<td>9%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>12%</td>
<td>13%</td>
<td></td>
</tr>
</tbody>
</table>

5. Customer Service

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>0.03%</td>
<td>0.03%</td>
<td></td>
</tr>
<tr>
<td>Third Party</td>
<td>0.03%</td>
<td>0.03%</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.03%</td>
<td>0.03%</td>
<td></td>
</tr>
</tbody>
</table>

6. Transport

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>1.42%</td>
<td>1.61%</td>
<td></td>
</tr>
<tr>
<td>Third Party</td>
<td>1.98%</td>
<td>1.23%</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>1.25%</td>
<td>1.40%</td>
<td></td>
</tr>
</tbody>
</table>

7. Inventory (Values @ $10.00 unit)

<table>
<thead>
<tr>
<th></th>
<th>Audio</th>
<th>Third Party</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>23%</td>
<td>16%</td>
<td>19%</td>
</tr>
</tbody>
</table>

Seven KPIs were derived from the data for both ABC – Audio, and ABC Video

The results are shown in the table below and then represented graphically against industry benchmarks overleaf.

The derivation of each is also described overleaf.
Champions Challengers™ - Level 1 Metrics

ABC leads and lags

<table>
<thead>
<tr>
<th>KPI</th>
<th>Performance</th>
<th>Advantage</th>
<th>Disadvantage</th>
<th>Parity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warehouse as % Gross Sales</td>
<td>&gt; 2.94%</td>
<td>&lt; 1.96%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Returns as % Gross Sales</td>
<td>&gt; 2%</td>
<td>&lt; 1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outbound Transport as % Gross Sales</td>
<td>&gt; 1.94%</td>
<td>&lt; 0.62%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Service as % Gross Sales</td>
<td>&gt; 0.75%</td>
<td>&lt; 0.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply chain Cost/order</td>
<td>&gt; $91.74</td>
<td>&lt; $31.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply chain Cost/line</td>
<td>&gt; $19.50</td>
<td>&lt; $9.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ave Inventory as % Sales</td>
<td>&gt; 11.84%</td>
<td>&lt; 9.19%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comparisons with Database of 41 similar supply chains including:
- Austsoft,
- Corporate Express,
- Hanimex,
- Hardy Spicer,
- Harper Collins,
- John Sands,
- Penguin,
- Quicksilver,
- Vodafone, etc.

Legend
- Audio Products
- Video Products

Metrics supplied by www.logisticsbureau.com
Newco Level 1 Supply Chain Metrics
Champions Challengers®

<table>
<thead>
<tr>
<th>Metric</th>
<th>'Disadvantage'</th>
<th>'Parity'</th>
<th>'Advantage'</th>
<th>BIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery in-full by line</td>
<td>&lt; 93%</td>
<td>93 - 97%</td>
<td>&gt; 97%</td>
<td>99%</td>
</tr>
<tr>
<td>Delivery on-time</td>
<td>&lt; 95%</td>
<td>95 - 97%</td>
<td>&gt; 97%</td>
<td>99%</td>
</tr>
<tr>
<td>DIFOT in-full x on-time</td>
<td>&lt; 88%</td>
<td>88 - 94%</td>
<td>&gt; 94%</td>
<td>98%</td>
</tr>
<tr>
<td>Total Supply Chain Mgmt Cost % Sales</td>
<td>&gt; 12.3%</td>
<td>12.3 - 8.0%</td>
<td>&lt; 8.0%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Cash to Cash Cycle Time</td>
<td>&gt; 45 days</td>
<td>45 - 34</td>
<td>&lt; 34 days</td>
<td>31 days</td>
</tr>
<tr>
<td>Stockturns Finished Goods</td>
<td>&lt; 5 turns</td>
<td>5 - 11</td>
<td>&gt; 11 turns</td>
<td>22 turns</td>
</tr>
</tbody>
</table>

Please see 1.3 for comparison dataset information and Appendix 2 for Definitions of Metrics.

www.logisticsbureau.com
### Newco Level 1 Supply Chain Metrics
#### Champions Challengers®

<table>
<thead>
<tr>
<th>Metric</th>
<th>'Disadvantage'</th>
<th>'Parity'</th>
<th>'Advantage'</th>
<th>BIC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Delivery in-full By Unit</strong></td>
<td>&lt; 85%</td>
<td>85 - 97%</td>
<td>&gt; 97%</td>
<td>99%</td>
</tr>
<tr>
<td><strong>Delivery on-time</strong></td>
<td>&lt; 93%</td>
<td>93 - 97%</td>
<td>&gt; 97%</td>
<td>98%</td>
</tr>
<tr>
<td><strong>DIFOT (in-full x on-time)</strong></td>
<td>&lt; 79%</td>
<td>79 - 94%</td>
<td>&gt; 94%</td>
<td>97%</td>
</tr>
<tr>
<td><strong>Total Supply Chain Mgmt Cost %</strong></td>
<td>&gt; 11.1%</td>
<td>10.9 - 6.9%</td>
<td>&lt; 6.9%</td>
<td>5.3%</td>
</tr>
<tr>
<td><strong>Cash to Cash Cycle Time</strong></td>
<td>&gt; 46 days</td>
<td>46 - 32</td>
<td>&lt; 32 days</td>
<td>20 days</td>
</tr>
<tr>
<td><strong>Stockturns Finished Goods</strong></td>
<td>&lt; 5 turns</td>
<td>5 - 9</td>
<td>&gt; 9 turns</td>
<td>12 turns</td>
</tr>
</tbody>
</table>

Delivery in-full by line is not measured. Each order is loaded as a separate machine unless it is a dealer order.

Please see 1.2 for comparison dataset information and Appendix 2 for Definitions of Metrics.

*Figure 11: Champions Challengers – Level 1 Supply Chain Metrics*
KEY PERFORMANCE INDICATORS
KPI’s Score Card – Newco 1
Recommended score card – Sample for Warehousing

→ Newco currently collates data and calculates twenty ratios.

→ POV: Ideally KPI reporting should be limited to a scorecard of six indicators. For each, targets can be set and performance evaluated each month by visual inspection of trends and actual performance against target performance.

→ Examples of recommended efficiency and output ratio charts

**Order Line / Man Hour**
April 2006 - Jul 2009

**Labour Cost / Order**
April 2006 - Jul 2009

Decreasing labour cost/order is evident
KPI’s Score Card – Newco 1
Recommend score card

Returns Units/ $  
April 2006 - Jul 2009

Target: red line
Trend: yellow line returns /$ are falling

Labour cost / line item  
April 2006 - Jul 2009

Repetitive peaks show seasonality

Combined Units Shipped / $  
April 2006 - Jul 2009

Trend: yellow line units shipped/$ are falling

Labour Cost / Order Processed  
April 2006 - Jul 2009

$ Per Order

WAREHOUSING
Technology Applied to Warehousing

The golden Rule is: Apply technology only when the volumes justify it.

Technology & Volume Relationship

Volume

<table>
<thead>
<tr>
<th>Throughput</th>
<th>Low</th>
<th>Med</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Throughput</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Technology

<table>
<thead>
<tr>
<th>Low</th>
<th>Med</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pen and Paper</td>
<td>PC</td>
<td>Fork Lift Trucks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Host Computer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Radio Frequency Terminals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bar Codes Conveyors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Automatic Sortation</td>
</tr>
</tbody>
</table>

The golden Rule is: Apply technology only when the volumes justify it.
Picking Methods – Full Case and Split Case Picking

Photos Courtesy of Dematic
RF and Voice Directed Put away and Picking

Photos Courtesy of Dematic
topSPEECH at stake
Automated Handling in Warehousing with Conveyors

Photos Courtesy of Dematic
Pallet Racking Systems
Other Shelving Systems

Photos Courtesy of Shaefer
How Not to Design a Warehouse
Now consider Bill the Donkey!

Any ‘Lord of the Rings’ fans here?
The Relationship with Large Enterprises in the Supply Chain

Mal Walker
27th May 2010
Should you Outsource our Warehousing and Transport?

• Outsourcing of warehousing to a third party is typically preferred by companies who have a strategy to:
  – remove assets from the balance sheet
  – utilise high security or purpose built dedicated facilities e.g. hi tech facilities, cold storage, freight terminals etc
  – focus at their core business and divest of logistics e.g. manufacturing
  – Enshrine flexibility in their supply chain with short term ability to change product ranges and volumes for seasonal product and expand and contract inventories at call
  – Supplement current facilities with extra capacity which they cannot hold themselves

• Cost is a factor but is generally lower on the list behind the issues above.
• This is because companies rarely save money when they outsource.
• At best they may achieve par with current costs.
• For the majority, however, they can pay from 5-15% more than their current cost structure for the pleasure.

Consider the following chart. From the point of view
### Outsourcing Viability Matrix

How attractive is your business to 3rd party customers

<table>
<thead>
<tr>
<th>Uniformity of product range and process</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Maybe viable (medium risk)</td>
<td>Do not outsource (High risk)</td>
</tr>
<tr>
<td>Low</td>
<td>Outsourcing viable (medium risk)</td>
<td>Outsourcing is viable (low risk)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Complexity of product and process</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Industrial products</td>
<td>Beer &amp; Wine</td>
</tr>
<tr>
<td>Low</td>
<td>Maybe viable (medium risk)</td>
<td>Frozen foods</td>
</tr>
<tr>
<td></td>
<td>Outsourcing is viable (low risk)</td>
<td>Cosmetics</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Maybe viable (medium risk)</td>
<td>Outsourcing is viable (low risk)</td>
</tr>
<tr>
<td></td>
<td>Do not outsource (High risk)</td>
<td>Outsourcing is viable (low risk)</td>
</tr>
</tbody>
</table>

- **Uniformity of product range and process**
  - High: Industrial products, Blood Products, Blood Products
  - Low: Special or Unique products, Industrial products, Chemicals

- **Complexity of product and process**
  - High: Industrial products, Beer & Wine, Frozen foods
  - Low: Blood Products, Special or Unique products, Auto spare parts

This matrix helps in determining the viability of outsourcing based on the uniformity and complexity of the product range and process.
Inventory Strategy

1. Review MOQs (replen) cost/benefit
2. Improve inventory accuracy / visibility
3. Improve S&OP processes
4. Focus on high volume (fast movers) first