Green Logistics WM10:

Developing sustainable approaches to reverse logistics for the collection, recycling and disposal of waste products from urban centres

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Understand supply chains handling core goods, services, returns & waste

What new operating practices/technologies could improve efficiency and reduce negative transport impacts?

[Diagram showing different supply chain handling methods for less than truckload and full truckload suppliers, including consolidating loads, rationally routing products, combining complementary flows, and integrating primary and secondary distribution, managed through ICT.]
Product returns

Source: Mike Bernon, Cranfield University
Sample return rates by industry

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magazine publishing</td>
<td>50</td>
</tr>
<tr>
<td>Book publishers</td>
<td>20-30</td>
</tr>
<tr>
<td>Book distributors</td>
<td>10-20</td>
</tr>
<tr>
<td>Greeting cards</td>
<td>20-30</td>
</tr>
<tr>
<td>Catalogue retailers</td>
<td>18-35</td>
</tr>
<tr>
<td>Electronic distributors</td>
<td>10-12</td>
</tr>
<tr>
<td>Computer manufacturers</td>
<td>10-20</td>
</tr>
<tr>
<td>CD-ROMs</td>
<td>18-25</td>
</tr>
<tr>
<td>Printers</td>
<td>4-8</td>
</tr>
<tr>
<td>Mail order computer manufacturers</td>
<td>2-5</td>
</tr>
<tr>
<td>Mass merchandisers</td>
<td>4-15</td>
</tr>
<tr>
<td>Auto industry (parts)</td>
<td>4-6</td>
</tr>
<tr>
<td>Consumer electronics</td>
<td>4-5</td>
</tr>
<tr>
<td>Household chemicals</td>
<td>2-3</td>
</tr>
</tbody>
</table>
Returns: Transport Issues

- 95% of consumers would rather return a product purchased over the Internet to a physical location.
- 43% would always use that option if it were available.
- 37% of online buyers and 54% of online browsers were deterred from purchasing online because of return and exchange processes that were too difficult.

Jupiter Research & Returns Online
Factors causing returns

1. Forecast accuracy/demand variability
2. Promotional activities
3. New product intro’s
4. Safety stock policy
5. Logistics trade-offs
6. Product life cycle
7. Purchasing policy
8. Legislative issues
9. Cash flow management
10. Liberal returns policies
11. Customer ‘no-faults found’
Customer returns product to reverse flow

Reverse transport → Testing

Can it be resold?

Yes → Processing

Primary market stock, vendor

No → Can it be repaired Refurbished?

Yes → Repair/refurbish condition

Secondary market

No → Does it have residual value?

Yes → Value recovery

Reprocessors, recycling market

No → Disposal

Compliance Information

The ‘Gate Keeper’ function
Miracles (2006) Dove recycling trial, Winchester
- Waste audit of 100 businesses on Winchester High Street
- 68% did no recycling, 55% had weekly collection (7 different contractors)
Barriers to SME recycling

• Inadequate free space on-site to separate waste & returns
• Waste contractors will only provide a collection service once a sufficient quantity of material has been identified/stored
• Inadequate storage space for waste to be stored until there is a sufficient quantity to be collected by the waste contractor
• SME’s unaware of opportunities to recycle
Integrated outbound & returns network

Store

Disposition

RDC
Non-Integrated outbound & returns network

Store

RDC

RTN’s centre

Disposition
3rd party returns management

Store

RTN’s centre

Asset recovery

Disposition

RDC
Return to supplier

Store -> RDC

Disposition

Supplier
Barriers to effective RL

1. Large variations in timing, quality and quantity of product returns
2. Lack of formal procedures for product returns
3. Delayed product returns causes reduction in market value
4. Lack of local competence in inspection, evaluation and disposition of returns
5. Risk of cannibalisation of market for new products
6. Lack of performance measurement of the efficiency of reverse logistics
Systems for managing returns

Wincanton

Wincanton collection/customer delivery

HWRC’s

Businesses

Manufacturers

Sortation Centre (Test)

Recycle

Disposition

Warranty

Prestine goods

• Refurbishment
• Fridge re-processing
• Metal recycling
• CRT processing
• WEEE processing

• Return to manufacturer
• Return to stock
Systems for managing returns

DHL

• De-installation of finished goods at the customer's site

• Returns Management, receiving, sorting, verifying and managing returned products

• Gate keeper function. Is the return:
  - Jobber (58%)
  - Skip (1%)
  - Return to stock (4%)
  - Return to supplier (37%)

Argos, Ikea, Homebase, Habitat, Next, MFI, M&S
Systems for managing returns

- **Christian Salvesen** (www.salvesen.com)
- **iForce** (www.iforcegroup.com)
- **Collection-Delivery Point (CDP) Networks**
  - e.g. RedPack Network Inc (www.redpackit.co.uk)
  - ByBox (www.bybox.com)
  - Local Collect (www.royalmail.com)
Systems for managing returns

- Fareshare (www.fareshare.org)
- Auction Assist (www.auctionassist.co.uk)
- RASCAL (www.rascal-solutions.com)
- Waste Interchange Ltd (www.wasteinterchange.co.uk)
- Furniture Re-use Network (FRN) (http://www.frn.org.uk/)
- Fonebak (www.fonebak.com)
- Computer Aid International (www.computeraid.org)
- Create (www.createuk.com)
- Remploy(ecycle) (www.remployecycle.co.uk)
Winchester case study
Research outputs

Impacts of current operations

- Weekly/annual km driven, CO2 generated, fuel used
  i) supplying core goods to retailers in the CBD
  ii) servicing retailers waste and product returns in the CBD.

- Recyclate and returns O-D maps showing the movement volume by product category related to the current re-processing and treatment facilities used.

Impacts of new scenarios

- Returns groupage facilities for testing and take-back
- New operating practices (load consolidation - vehicles from different supply chains used to consolidate
  i) recyclate returns, ii) product returns to recycling or testing facilities);
- Round re-scheduling to allow collection from consolidation centres and delivery to final treatment/disposal centres.
- Impacts of new technologies to aid consolidation & groupage
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