REVERSE LOGISTICS

Enhancing Core Management Decisions

Remanufacturing Industries Council
Webinar Series - March 2, 2016

http://remancouncil.org/

Vaughn Henson | General Manager | SRC Logistics, Inc.
Vhenson@SRCLogisticsinc.com
Remanufacturing – Sustained Value

The U.S. Postal Service and Department of Interior both informed the GAO that they have reduced repair and maintenance costs by utilizing remanufactured vehicle components. In addition to the cost savings, remanufacturing has environmental benefits as well.

Postal Service Fleet: 211,264 vehicles, one of the largest civilian fleets in the world.
Reranufacturing – Sustained Value

The United States is the world’s largest producer, consumer, and exporter of remanufactured goods.

...the value of US remanufactured production had reached $43 billion by 2011, supporting approximately 180,000 full-time jobs.

--- U.S. International Trade Commission
Advanced Remanufacturing

- Modern remanufacturing depends on advanced manufacturing technologies and controls:
  - ISO Certifications
  - Safety programs
  - Metal additive techniques
    - Spray welding, metal deposition, etc
  - Clean rooms
    - HEPA filters, micron tolerances
  - Fuel injectors ~ 30,000 psi
  - Electronics
    - Precision and ruggedized electronic applications
    - ECM’s, sensors, video displays
No Core, No Reman... man.

Core availability can be impacted:

- Who has the cores?
- What cores are available?
- When are the cores available?
- Where are the cores?
- Flexing core values impacts supply vs. demand
It’s Coremplicated

• **Core values** have elasticity

• **Defect deductions** change behaviors
  • Need more core? Adjust the value.

• **Core processing**
  • **What** if credits were given within 48 hours?
  • **What** if freight was automated for dealers?
  • **What** if status was visible, available real-time?
  • **What** if pictures of defects were sent back to dealers and used for training?
Coremlications – Keep Digging

• When are the cores available?
  • What if cores were tracked during transportation?
  • What if shipping requirements / weights could be updated in real-time?

• Where are the cores?
  • What if customized alerts could be generated and sent to dealers, core buyers, scrap yards, etc.?
  • What if your system produced a geo-map of core locations?
Reman Needs

• Market analysis
  • Value created by satisfying customer needs.
• Engineering - technical capabilities
• MRP - Raw materials (cores)
• Marketing, sales, etc.
• Just like Manufacturing:
  • Management support
  • Entrepreneurial spirit is a must
Core Control

• Who owns the core, owns the market
• Who understands core, survives and thrives in the market!

• Survey results: primary method to forecast core availability is:
  • Management Opinion
  • How good is your opinion at predicting availability?
Core Chaos - It depends...

<table>
<thead>
<tr>
<th>Variables</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligibility with suppliers</td>
<td>Customers (millions)</td>
</tr>
<tr>
<td>Eligibility for dealers</td>
<td>Dealers (thousands)</td>
</tr>
<tr>
<td>Criteria transparency</td>
<td>Core Brokers (hundreds)</td>
</tr>
<tr>
<td>Core banking</td>
<td>Salvage Yards (thousands?)</td>
</tr>
<tr>
<td>Core deposit vs delayed invoicing</td>
<td>Core Round-ups</td>
</tr>
<tr>
<td>EPA, Warranty tracking</td>
<td>Parts Peddlers</td>
</tr>
<tr>
<td>Owes and Dues</td>
<td>Repair Shops (130,000+ auto shops)</td>
</tr>
<tr>
<td>Core criteria deductions</td>
<td>Secondary / substitutes</td>
</tr>
<tr>
<td>Fall out ratio</td>
<td>Reclass new</td>
</tr>
</tbody>
</table>
Sources and Uses

- Customers
- Dealers
- Brokers
- Salvage
- Repair Shops

Core

Variables

- Eligibility
- Banking
- Criteria
- Deductions
- Defects
- Core Values
- Primary use
- Secondary use
Data Overload

• One OEM’s experience:
  • 1,200,000 annual core requirements
  • 1,000 source locations
  • 10 defect codes avg.

• 12 Billion data combinations
  (McDonalds took 20 years to sell 12 Billion burgers!)

• Additional tracking needs:
  • Changes to values, eligibilities, criteria, etc.
Freight Logics

Freight to collect core can be significant. Costs are not always visible. Freight optimization yields continuous savings.

Single vs. Multiple locations:
- **Low value cores**: brake shoes, are typically collected at multiple locations.
- **Multiple** points throughout a system

- **High value cores**: large engines, typically collected in a **central** location.
- Creates economies of scale and efficiencies for in-bound freight, inspections, expertise, storage and distribution.
The S in SRC

• Results of Navistar’s comprehensive freight study identified **Springfield, MO** as the optimal location for Remanufacturing operations, including core collections and processing.

• Springfield is the *population center* of the U.S.

• Find your sweet spot! Impact is long-lasting.
LRC?

- Springfield is **NOT** the geographical center... Lebanon, KS is... but, there's no warehouse.
Core Reporting

• Dashboards!

• Develop and control data centrally to ensure integrity

• Disperse the data to support decisions and transparency

• Dashboards!
Core Reporting

- Data wants to tell a story
Data-Driven Core Management Platform

• Freight Management
  • Reverse logistics / receiving / tracking

• Core Processing
  • Criteria and defect inspection
  • Inventory accuracy, material recovery / scrap
  • Warranty testing

• Distribution
  • Pick / Pack / Shipping

• Other
  • Core availability forecasting
  • Compliance, EPA tracking support, audit trails
  • Reporting, Dashboards, queries
  • Data integration with other systems
Future Enhancements

• Image capture, recognition, inspection
• Integration
  • Warehouse / inventory management
  • Pick / pack optimization
  • Distribution and tracking
• Advanced bar codes
• RFID (metal parts in bins…maybe not)
• Dashboard reporting