REVERSE LOGISTICS magazine®

Serving the Automotive, Health Sciences, Retail, and High Tech Industries

ROLLS-ROYCE REDUCES COST AND IMPROVES EFFICIENCY

SNEAKERS WITH A PURPOSE

PAGE 28

M&A TO INNOVATE

PAGE 30

WHERE THE COUNTERFEITS ARE

PAGE 34

Edition 58

OFFICIAL MAGAZINE OF THE REVERSE LOGISTICS ASSOCIATION®

REVERSE LOGISTICS ASSOCIATION

2014 International CES

PRODUCED BY CEA

Location: LVCC South Hall
Booth: 31846

2014 International CES - Booth Schedule

RLA Members can join us at the RLA exhibit booth to educate others on the Reverse Logistics process and on the solutions RLA member companies offer. Reserve your time at http://rltshows.com/ces14_event.php to participate in the RLA exhibit booth. Once you have signed up for time at the RLA booth, you will receive a follow up email with information about booth standards. RLA membership is required to participate.

	Tues., January 07, 2014		Weds., January 08, 2014		Thu., January 09, 2014		Fri., January 10, 2014	
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10 AM 12 PM	Jessica Handy Pervacio	Jessica Handy Pervacio	Jessica Handy Pervacio	Erin Elmiger Professional Field Services	Available	Available	Available	Available
12 PM 2 PM	Jessica Handy Pervacio	Jessica Handy Pervacio	Jessica Handy Pervacio	Available	Available	Available	Available	Available
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Reverse Logistics Magazine welcomes articles and abstracts.
Please send to: editor@RLmagazine.com

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by Isabel Fernández Quesada

Reverse Logistics (RL) is an issue that has received growing attention in the last decades, due to the occurrence and simultaneity of several situations.

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by Reverse Logistics Association

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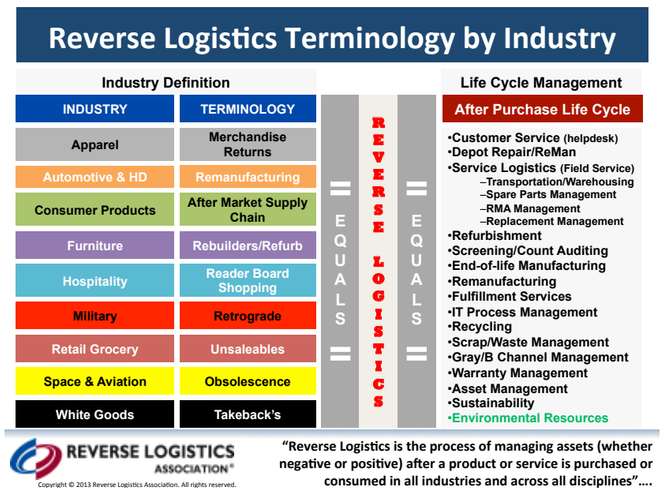
Message from the Editor

In this edition, you will see a variety of articles written from many different industries that are involved in Reverse Logistics. You will find articles written by Reverse Logistics professionals from an automotive company, a pharmaceutical company, an apparel company, and a software company – all of which have Reverse Logistics. Their Reverse Logistics process may not be the same – but the common thread is they do have a Reverse Logistics process.

RLA has created a graph that shows all the different terms that are used in Reverse Logistics from each of the different industries (full version found on page 63). We are always updating this graph because we are continually being educated on each industry and the new terms from the different industries.

We continue to work with all the different industries, and learn from each of them on their struggles, challenges, and successes. We have monthly Industry Committee Meetings for this very reason. These forums are a great atmosphere for individuals to share, and for others to listen and learn from one another. This is what is so great about our Association and our Members, is the continual educating and learning from one another. We encourage our Members who have attended our Webinars, Conferences, and Seminars, where they learned from others to better their Reverse Logistics process – to continue to come back and share their challenges and successes with others at future events.

Thank you,
Felecia Przybyla
editor@rla.org



OUR MISSION

Our mission is to educate and inform Reverse Logistics professionals around the world. RLA focuses on the reverse logistics processes across all industries. No matter the industry — High Tech, Consumer Electronics, Automotive, Medical/Pharmaceutical, Food and Beverage, Apparel, or other — our goal is to provide RL process knowledge to all industries. We want to educate everyone about the Reverse Logistics processes that are common to all industries and to be a catalyst for innovation in developing and implementing new RL processes. We have been and will continue to provide our services to the industry at a moderate price.

Managing the latest information in services such as repair, customer service, parts management, end-of-life manufacturing, service logistics, field service, returns processing and order fulfillment (just to name a few) can be a little intimidating, to say the least. Yet that is exactly what the Reverse Logistics Association provides through our membership services. We serve manufacturers and retailers in a variety of settings while offering ongoing updates on market trends, research, mergers and acquisitions and potential outsourcing opportunities to 3PSPs. We have gained the attention of 3PLs like FedEx, DHL, USPS and UPS. 3PSPs like Teleplan, Foxconn, Flextronics, Canon, Sony and Jabil, along with small- and medium-sized service providers have found that RLA resources help advertise their services to a regional and global audience. OEMs like Microsoft, HP, RIM, and Sony, along with Retailers like Wal-Mart, Canadian Tire, Tesco and Best Buy all participate at our events. Through RLA Events, RLA Connect services and our publications – RL Magazine and the Weekly News Clippings email – we help OEMs, ODMs, Branded and Retail companies find service partners and solutions providers that were previously unknown to them.

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REVERSE LOGISTICS ASSOCIATION

Message from the Publisher

DEFINING REVERSE LOGISTICS

I've watched the changing definition of Reverse Logistics as it appears on Wikipedia over the years. I've never felt comfortable to inject my personal definition on Wikipedia, but I just might do that sometime, in the future. But here is my thought, **"Reverse Logistics is the process of managing assets (whether negative or positive) after a product or service is purchased or consumed in all industries and across all disciplines"….**

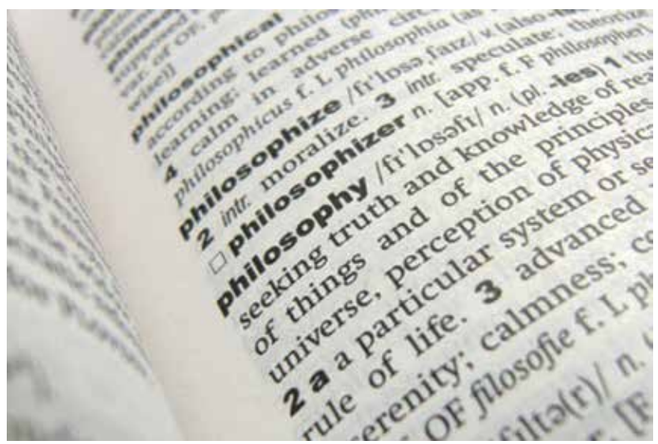
Defining reverse logistics has been my full time job for the last 12 years and it still isn't complete. Why is it not finished? Well we are still learning, or stumbling along trying to make sense of a very complex process.

In this month's issue of RL magazine there are such diverse articles including "The Concept of Reverse Logistics, A Review of Literature" by Dr. Isabel Fernández that shows the complexity of the term we call Reverse Logistics and the "Proposal for a New Industry Standard" being made Mr. Ken Jacobsen of our Standards Committee for the use of QR codes in RL.

We can learn from other companies as we listen to other RL Professionals in the evolving landscape of discussions on reverse logistics. Just look at a few committees that meet each month to define RL, make sure you join in or you might be falling behind on your knowledge of reverse logistics.

Committees

Software Solutions - Life Sciences - Standards - Apparel - Brasil Chapter - ReMan (Automotive & HD) - North America Chapter - Data Storage - Europe Chapter - Sustainability and Environmental Management - Consumer Products - Retailers - Africa Chapter- Extended Warranties - Corporate Social Responsibility - Spare Parts Management - Latin America - Food and Beverage (Unsaleables) - Wireless Telecommunications



On a closing note, a great person, Nelson Mandela slipped away from our view over the last few days. He did so much to recover, restore, and repair the hearts of mankind to love one another. He will be missed!

Best Regards,
Gailen Vick, Founder & Publisher
www.RLA.org

Board of Advisors

A Board of Advisors comprised of industry experts has been set up to monitor and assist the Reverse Logistics Association management team in making informed decisions. Advisors include:

David Maloney, Google, David Moloney, as Senior Manager of Reverse Logistics & Business Systems, is an operational leader with technical focus, a technical leader with operational focus: "I flip between both roles as circumstances require. I build operations for consumer electronics startups: business model, process, legal framework, international expansion, NPI, PLM, sourcing talent, forward logistics, contact centers, reverse logistics, wireless certification, online and backend systems, knowledge management, sleeve rolling-up."

Edwin Heslinga – Microsoft, Edwin is currently Director of Reverse Logistics Programs and Policies for Microsoft Devices. In his position Edwin is responsible for development and enforcement of policies surrounding returns and all related costs to the returns and is also involved in the Customer Satisfaction Continuous Improvement Council. Working with Microsoft Call Center and the Microsoft Manufacturing Operations.

Charles Johnston – Home Depot, Charles Johnston is Director of Repair and Returns at The Home Depot Chuck was with WAL-MART for the past 14 years and his responsibilities include Returns, Imports, Exports, Tires and Printing and Mailing Distribution.

Troy Kubat - Walmart, Troy is now the Director of Logistics Engineering-Grocery at Walmart having worked is way up from Director, Logistics Operations, Industrial Engineering Manager at Walmart
- International Division and Japan Expatriate
- Logistics Operations Lead at Walmart - International Division

Thomas Maher - Dell, Tom Maher joined Dell in 1997 and is the Executive Director for Global Service Parts. Mr. Maher is responsible for service parts life cycle support in over 100 countries. Mr. Maher's global service parts responsibilities include: planning, procurement, distribution, returns, repair, inventory management, supplier management and parts disposal. These operations support 100% of Dell's warranty customers across all Business Units and all Product Lines.

Ian Rusher - Cisco Systems, 20 Years within Supply Chain Operations, of which the last 15 Years have been spent in reverse Logistics. Previous experience running 3Com EMEA Warranty/Service Repair Operations, Responsible for both Internal and 3rd party repair operational performance and Engineering support. Moved the operations from a predominantly In-House business to a total outsourced operational model.

Tony Sciarrotta – Reverse It Sales & Consulting, Tony Sciarrotta has held a variety of sales and marketing positions in the consumer electronics industry for over 30+ years, including the last 25 years at Philips Consumer Lifestyle. His background prepared him in this developmental role as director for returns management activities, and he was responsible for implementing effective returns policies and procedures with a variety of dealers.

Ian Towell – Tesco, Responsible for end to end accountability for the non food returns business within UK Tesco, focussing on improving quality, policy application, asset recovery and logistical flow.

Susan Wackerman – Hewlett-Packard Company, Susan Wackerman is currently a Sr. Operations Manager in the Americas Supply Chain for HP's Imaging and Printing Group. In her position, Susan is responsible for the Recycling Operations for HP Americas and the Returns Operations / Remarketing for HP Americas Imaging and Printing Group. This includes supply chain development, reverse logistics, disposition and processing, refurbishment, resale, channel management.

Reverse Logistics Association Industry Committees

REVERSE LOGISTICS ASSOCIATION®

Industry Committees are set up to provide a standing forum for Reverse Logistics Professionals to meet on a regional and global basis and discuss common Reverse Logistics issues at the RLA Conferences & Expos. Industry Committees educate the industry on reverse logistics:

- "Best Practices"
- Consumer Satisfaction Issues
- Regulations on a Worldwide & Regional Basis Processes that can Reduce Costs

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Join today at www.RLA.org

Focus Committees & Regional Focus continued on to page 12

Rolls-Royce Corporation reduces cost and improves efficiency in the Reverse Logistics & Remanufacturing Supply Chain by applying LEAN 6-Sigma methods

by James W. Tilton

By reducing and / or eliminating waste from the reverse logistics processes in their remanufacturing supply chain Rolls-Royce Corporation, *located in Indianapolis, Indiana,* achieved over two million dollars in benefit.

These benefits were achieved through two separate LEAN Six Sigma projects.

The two issues facing Rolls-Royce were; ensuring they get the "right" materials returned for remanufacture. (A review of the old process showed an inappropriate volume of non-repairable inventory), and improving the process for receiving CORE inventory into their ERP system as quickly and efficiently as possible making it readily available for remanufacture.

LEAN Six Sigma DMAIC - Lean Six Sigma is simply a process for solving a problem. It consists of five basic phases: Define, Measure, Analyze, Improve, and Control. This process is also known as DMAIC (pronounced "duh-may-ik"), its acronym.

This article attempts to address each project from the DMAIC phases of *Define, Measure, Analyze, Improve, and Control.* Both Projects will be addressed in the Control phase. This article will also discuss; challenges to the process, how those challenges were overcome, the process(es) of finding the solution, what was implemented, and how those implementations made a difference.

Rolls-Royce is a world-leading provider of power systems and services. They design, develop, manufacture and support gas turbine engines for use on land, sea and air.

Unlike industries where materials are returned primarily for the recapturing of the base raw material value

through a revert and recycle program, Rolls-Royce operates a remanufacturing business to repair and return components to airworthiness condition. Rolls-Royce Global Repair Services/ Americas (GRSA) manages this operation.

GRSA is an *internal* 'third party service provider' (3PSP) within Rolls-Royce providing the repair and support services for engine components around the world. The Rolls-Royce **Corporation Customer Facing Business Units**, or CFBU's, make up GRSA's customer base.

GRSA is made up of the following departments: Repair Engineering, Program Management, Aftermarket Supply

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For more information visit RL Quote at
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REVERSE LOGISTICS ASSOCIATION®

Chain, Scheduling, Logistics, Quality, and Finance.

The mission of GRSA is to develop and oversee component repair processes and suppliers, create additional revenue opportunities for Rolls-Royce, offer the CFBU's a one-stop shop for repaired serviceable components, and provide a mechanism to turn technology into revenue.

GRSA's services help reduce engine overhaul turn times by having a pool of repaired, serviceable, inventory available, that will reduce the carbon footprint through the repair and reuse of parts, when possible, and recycling those parts which cannot be repaired or reused by reverting "scrap" to original billet form.

Roll-Royce has a global recycle/revert program whereby our scrap metals are reintroduced into the raw materials supply chain for both Rolls-Royce and our supply base.

The Process

When aircraft engines enter the maintenance cycle they are taken off-wing and replaced with recently overhauled units so that the aircraft can return to service with minimal delay.

The engines are shipped to an authorized maintenance center, or "AMC", where they are dis-assembled and the components are fully inspected. Inspection will route these components for; Recertification- cleared for re-use and be reinstalled, Scrap- be replaced with a new or remanufactured part, or deemed Repairable and sent to Rolls-Royce Global Repair Services Americas as a CORE. These COREs become the 'raw material inputs' into the remanufacturing supply chain.

Rolls-Royce utilizes a centralized receiving and distribution model.

Project #1 Getting the Right Stuff…

Define / Problem statements:

Returned COREs are rejected for "first finding" during the overhaul inspection and then returned to GRSA to enter the remanufacturing supply chain. Obvious scrap, (defined as thru-holes, distorted, missing material, etc.), was not segregated from potential 'repairable' inventory.

> *Note: An earlier project established a "MAX" Inventory level but failed to address the reparability of the COREs. As a result, excessive stock levels of repairable and non-repairable cores co-existed in inventory. This process would drive newly returned cores to be immediately scrapped regardless of serviceability due to max inventory levels to be reached.

This type of "inventory management" also contributes to lower repair yields.

Examples of Repairable / Repaired CORE and an "obvious scrap"

Measure

Analysis of on hand inventories showed fallout rates for a specific family of "high volume" cores was running on average about 50% potentially repairable / 50% obvious scrap.

Analyze

The basic process flow for a returned CORE is as follows; a CORE is sorted, packaged, (in a manner to protect the part with bubble wrap/paper, etc.), stored, and shipped. Then received, inducted, possibly re-packaged, and stored. Then to go out for repair it is; picked, shipped, and inspected (again). If repairable, the part enters the remanufacturing process. If it is not repairable (scrap), it

11th Annual RLA/RLTS Conference & Expo

AMSTERDAM

Over 400 RL Professionals & 200 Companies will be in Attendance

Location:
Amsterdam, The Netherlands

Venue:
Mövenpick Hotel Amsterdam City Centre

Date:
Workshops - June 17, 2014
Conference & Expo - June 18, 2014

Two concentrated Days of RL Thought Leadership, Innovation and Networking!

The Reverse Logistics Association Conference & Expo kicks off on Tuesday with workshops and committee meetings. Wednesday's events include the opening of the exhibit hall, the keynote address, sessions presented by RL professionals, leading academics and interactive panel discussions.

Session topics include "Controlled Reverse Chains for End-of-Life Products," "Returns Management and Asset Recovery" and "Challenges and Compliance with Cross Border Commerce." A wide range of Reverse Logistics companies will be in attendance from repair/refurbishing to recycling/e-waste and transportation logistics.

Be sure to visit the Exhibition Hall where OEMs, ODMs and Retailers will be looking for Third Party Service Providers that can manage Reverse Logistics in Europe and around the world. This is a rich opportunity for OEMs and Branded companies to identify future service partners among the many exhibitors showcasing their Reverse Logistics solutions.

For more information, visit: www.RLAShows.org

REVERSE LOGISTICS ASSOCIATION® CONFERENCE & EXPO

would also be … "packaged, (in a manner to protect the part bubble wrap/paper, etc.), stored, returned/shipped, received, and scrapped…

By removing the "Obvious Scrap" Components from the repairable CORES the remanufacturing yields rates have increased as well making the repair process more profitable for stakeholders.

It quickly became evident excessive shipping, storage, and inspection fees were incurred with the old process and its redundancies.

Analysis verified there was approximately a $950K annual savings potential in logistics and handling costs alone just due to the redundant activity for non-repairable 'obvious scrap' parts.

Repairable part

Repaired part

Obvious Scrap

Improve

A 3-phased approach was implemented to rid the pipeline of obvious scrap from existing and future shipments.

1.) Immediate Plan:
   a. Continue to sort existing on hand inventory (scrap/repairable)
   b. Implement process for sorting all incoming cores
2.) Intermediate Plan:
   a. Segregate scrap vs. potential at AMCs & ship back separately
3.) Long-Term Plan: Amend processes at AMC
   a. Evaluate & Expand Procedures to implement new requirements
   b. Sort inventory (1st), and
   c. Scrap on-site at AMCs to Eliminate the need to send / re-sort

Project # 2 Moving the right stuff with the "Speed of Light" …

Define

Rolls-Royce, like all businesses, faces growing cost reduction demands. One result is an increased focus on the utilization of remanufactured parts.

The receipting and inducting of CORES into the system was a bottleneck of manual processes producing an excessive lead-time. These steps required a high level of labor, tribal knowledge, and manual data entry, often accompanied by error.

Now that Rolls-Royce are getting the 'right stuff' the next challenge was to get it into the supply chain as quickly and efficiently as possible. This project team needed to focus their attention to 'leaning out' the logistics of CORE receiving and induction

Measure

The process for getting COREs properly entered into the (ERP) System begins at the receiving dock. This is a "determination" point in the process where parts are routed to the proper induction areas. AMC CORES are

Read the Press

5 Field Service Resolutions To Jumpstart 2014

9 December 2013- Here we are already. Its December and the holiday seasons in full swing. Were all busy rushing around, getting food, decorations, and gifts ready for parties, preparing to enjoy some much anticipated time with family and friends. I love this time of year for many reasons, but one of my favorites is reflecting on the past year and making goals for the new one. Yup, its that exciting time when you get to start fresh and achieve the goals youve always wanted to achieve; live the life youve always wanted to live; run the sort of business youve always wanted to run. Its time to make your 2014 New Years resolutions.

Full Article

Sustainability Trends Impacting Retailers in 2014

10 December 2013 – Retail hazardous waste management is an incredibly complex industry from both a logistics and regulatory standpoint. Theres only one constantit is always changing.

Full Article

GTSO: Revenue Streams Open Up In European E-Waste Market

10 December 2013 – Green Technology Solutions (OTCBB: GTSO) is using its pathway into the electronic-waste hotbed of Europe as an avenue to capitalize on current rare earth and other mineral commodity trends as it seeks a share of the global e-waste market that is projected to reach $20.25 billion by 2016.

Full Article

India to generate 1.5 lakh tonne e-waste a year by 2020: MAIT

10 December 2013 – India needs to sharpen focus on e-waste recycling and disposal as it is expected to generate about 1.5 lakh tonne of wastage from the use of electronics every year by 2020, IT hardware industry body MAIT said.

Full Article

Encompass Selected To Be National Parts Distributor For Panasonic Consumer Electronics Products

9 December 2013- LAWRENCEVILLE, Ga. Encompass Supply Chain Solutions, Inc., a leading provider of forward and reverse logistics for a diverse range of finished goods and replacement parts, today announced it will serve as a master distributor of spare parts and accessories for Panasonic Consumer Electronics Company's comprehensive consumer electronics line.

Full Article

iPad Mini Screen Repair Now Easier with ScrewMat for iPad Mini WIFI

08 December 2013 – ScrewMat.com has released the latest version of ScrewMats, including the ScrewMat for iPad Mini WIFI. The ScrewMat is a tool and magnetic guide that helps professional repair technicians and amateur do-it-yourself repair consumers more accurately disassemble and reassemble their own iPad Mini mobile tablet device.

Full Article

Bullitt Group Leverages B2X to Support Customer Care

09 December 2013 – B2X Care Solutions, the leading provider of customer care for electronic devices, today announced that Bullitt Group, a company that designs, manufactures, markets, and sells smart mobile phones and consumer electronics in partnership with global brands, has selected B2X to become its exclusive customer care partner for all of its licensed brands including Caterpillar.

Full Article

Home Delivery World: America's Leading Retailers and Supply Chain Solution Providers to Gather in Atlanta in April

9 December 2013—NEW YORK The North American home delivery industry is poised for incredible growth in the coming decade. Advances in both ecommerce and

Full Article

separated and routed by customer/application type, (i.e. Civil, Defense, Marine, and Energy). Other receipts could also include Customer Owned parts, Investigation parts, *scrap, etc.

*Some scrap is sent directly back to Rolls-Royce for proper disposal and Intellectual Property controls.

COREs are part of an "engine set" sent in on a unique order number tied to the Engine Serial number. Traceability to the particular engine serial number is critical in this process. Multiple engine sets of COREs would come in boxed and wrapped on the same skid without any segregation other than the information on the paperwork. So the receiver would have to sort not only by customer but also by engine set.

Further complicating matters, delivery informational paperwork was usually found somewhere *inside* the package. And since there was no established 'standard' for the management of documentation, locating that information was often a game of 'seek and find'. When the paperwork was buried wrapped around the part, inside bubble wrap, in a baggie, wrapped in paper... the process would border on spelunking.

For Receiving and Routing, an average day would see approximately 45 deliveries containing an average of 10 items per delivery. The average time spent to locate documents with the required data to route a delivery to the proper induction lanes was about 2½ minutes. That's almost 18 man-hours a day.

Induction:
Because no standard existed, everyone had his or her own system. And oftentimes the sorting and identifying process was repeated at the induction area. This could consume up to two thirds of the inductors time leaving only one third of their day to be spent on value-added induction activity.

Analyze
The analysis of this project indicated that 75% of the time spent to receive and induct materials into inventory was spent looking for 3-5 basic pieces of information.

1. The Order #
2. Valuation types - (CORE, SCRAP, Investigation,)
3. Part Number, and associated data,
   a. Serial number
   b. Quantity

These data points are entered into the ERP System multiple times through multiple transaction codes and depending upon complexity it could involve up to 12 different screens. The data was all hand entered with keystrokes.

Why was this? A *"5-WHY" analysis highlighted that prior to this project the directions guiding the returns of CORE hardware focused on the "What" and the "Where" to send, but lacked focus on the "HOW" to send it.

> **The 5-Why analysis method is used to move past symptoms and understand the true root cause of a problem. It is said that only by asking "Why?" five times, successively, you can delve into a problem deeply enough to understand the ultimate root cause. By the time you get to the 4th or 5th why, you will likely be looking squarely at management practices.*

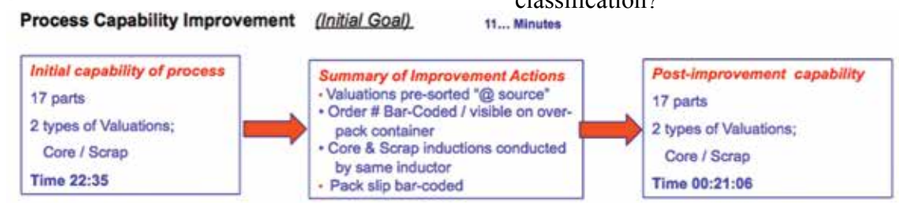
The initial goal of this project was to expedite the **induction** process with barcoded pack slips and replacing 'keystrokes' with a scan of the barcodes.

Following the DMAIC process, the data showed the **receiving and routing** processes also had an excessive amount of non-value added time.

Most of that activity was time spent looking for data that could easily and clearly be captured in one barcoded number. The unique order number was that number.

Improve
Researching the Reverse Logistics Associations website for process improvement ideas produced an article on Returns Management Systems (RMS). Using this resource, an RMS was created and implemented to add focus on the "HOW" along with the "what & where" and moved the 'SORTING' activity upstream to point of discovery at the AMC. This is now a documented Rolls-Royce Corp. CFBU policy.

RMS in Brief



Before an item can be refurbished, repaired, repackaged, recycled, or sold, it has to be properly identified and recorded into inventory. Our DMAIC "Critical to Quality" (CTQ) goal was to get the most required information from the least amount of data to manage. Our CTQ was leveraging the Return Order Number.

A robust RMS can enable this function with minimal data points. A Return Order Number can provide the following data:

Where did the shipment come from?
Where is the shipment headed?
What is the total "inventory" of the shipment that has been received?
What is the SKU / Model number / Serial number or other identifying number for item identification?
What is the condition of the item? (CORE, SCRAP, INVESTIGATION, etc.)
What is the value of each item received?
What quantity is received?
Is the asset "hazardous" or some other regulated classification?

Basically all the sorting and identifying was pushed upstream to the supply sources. Like components, from the same engine set, in the same conditions (core / scrap), would be packaged and identified as such with a barcoded labels. They would be over-packed into a

RECYCLE A PHONE, ADOPT A TREE.

In late 2007 NEWtrees was formed as a joint initiative by WWF Indonesia, Nokia and Equinox Publishing. In that time Nokia has sponsored the planting of more than 130,000 trees in Sebangau, Rinjani and Chiliwung National Parks, Indonesia. Applying geo-tag technology using HERE maps people monitor the trees growth in an innovative way while helping re-forest these protected national parks.

If you are interested in helping out with this program, bring your unwanted cell phone to the next RLA event and look for the Nokia drop box to donate your phone, plant a tree, help protect our environment.

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REVERSE LOGISTICS ASSOCIATION CONFERENCE & EXPO

larger container with a barcoded label using the Return Order Number as the primary piece of data.

Test Case:
The team targeted a 50% improvement in the Receiving process. The project was base-lined with an average delivery packaged in the 'BEFORE State' manner and timed. Then the team implemented the disciplines of the new RMS packaging and labeling guidelines for the 'AFTER state'. Then the two times were compared.

Using the old method an average delivery comprised of 17 materials (both CORE and Scrap) was received in and sorted. Time: 22 minutes: 35 Seconds.

50% would give us a target of about 11 minutes.

After repacking to the proposed method with segregated materials, and easily attainable Bar-coded Order information on the outside of the box the delivery was received and routed in 21 Seconds. The result was actually closer to a 600% improvement.

Subsequently the inductor could now create up to 200 % more inductions because the engine sets are presorted. So the 66% of their time spent sorting can now be spent inducting. Pack slips are now barcoded doing away with the manual data entry vastly minimizing data entry errors by over 95%.

This project delivered approximately $180,000 annual savings in time, labor and error corrections.

Control
Both of these projects employ a similar set of control methods. These would include an auditable process for identifying and reporting key metrics / accountabilities that can be easily attained and communicated for compliance.

Some Background
The CFBU owns oversight of their inventory and the relationships with their customer and AMC bases. GRSA is responsible for the repair process of the CFBU's inventory.

The Global Repair Services / Remanufacturing organization is relatively new to the rest of the company and was born within one of the Rolls-Royce Corp business units. It started as an idea to in one Business Unit and grew faster than expected and was adopted into all CFBU's.

Over time GRSA and the CFBU had to face which parts to keep as core and which ones to revert/scrap directly. In the early days absolutely everything was kept and f storage space ran out. It got to the point of needing to make decisions on what was kept and what was scrapped. Eventually maximum inventory levels were set on some of the cores that didn't have an active repair.

Challenges
The bigger, more multifaceted, and diverse, an organization, so becomes the challenge to implement change. Program coordination can be challenging without a solid understanding of the bigger picture across the stakeholder base.

Another big issue in a remanufacturing / reverse logistics program is relationship management. The relationship requires a bit of "role swapping" if you will. In a program such as this, the customer becomes the supplier, and vice versa. The customer now supplies you with their core returns. This is where the ability to think and act collaboratively comes in full steam. The more complex and diversified the organizations involved are, the more challenging the relationship becomes to manage.

Additionally the same people aren't always the ones controlling what comes in and what goes out. Sometimes the parties that would be the most accountable or responsible for these types of initiatives don't even know they are plainly due to lack of awareness, or inability to visualize the bigger picture.

Deficiencies in awareness, an unshared sense of urgency, collaborative environments vs. competitive environments, can all stem from a disconnected organizational structure and impede progress if not careful.

How We Overcame Those Challenges
It didn't happen overnight…

Louis Pasteur said, "Chance favors only the prepared mind." By this he meant that sudden flashes of insight don't just happen— they are the products of preparation. Sometimes that preparation just means repeating a story *until someone is ready to hear it*. Not everyone "gets it" the first time they are introduced to a different way of thinking... so repetition becomes key…

For the Obvious Scrap project the significant emotional event came during a conversation (during the OLD process) when a service engineer asked about a group of seemingly repairable parts that were about to be scrapped. When the Process of how MAX inventory levels were managed he asked "… well then what is the **quality** of the COREs in stock if you are scrapping out everything beyond the MAX quantity "

The response of "You don't know…. "Became the catalytic spark that launched the LEAN Project.

Process Of Finding The Solutions

You need the right team, tools and partners. Fortunately Rolls-Royce and their 3PL partner share a LEAN philosophy in their corporate culture and approach to sustainability. Their local management team employs at least one LEAN Certified / SIX SIGMA Black Belt.

Both Rolls-Royce and the 3PL are experiencing improved efficiencies and cost savings. Each party had plenty of win-win opportunities with these projects.

For the *Obvious Scrap* / CORE Reduction project we basically *5-S'd our CORE Inventory.

*5S is a targeted list of activities that promotes organization and efficiency in the workplace. The 5S terms are sorting, straightening, shining, standardizing, and sustaining.

What we did

Sorted: Scrap vs. Repairable (keep)

Set in Order: scrapped the scrap / repackaged re-stocked our cores

Shined: (cleaned up the process) took the project to the source at the AMC's

Standardized: amended the inspection criteria to either scrap on site or label and separate scrap for controlled scrapping at our facility.
Sustain – Compliance checks via on site audits @ the AMC's

For the CORE Induction process we went back to the basics following the K.I.S.S. Rule (Keep It Simple, Sxxxxx). We implemented a universally accepted barcode tool to leverage our data by barcoding the order number and pack slips.

One big shared lesson from this project was *"A bar code is a font"*, that can be easily used in practically any document or spreadsheet.

How Those Implementations Made A Difference
By implementing Standardized processes Rolls-Royce and their 3PL were able to drive overall operational costs down while decreasing Dock-to-Stock times.

Thus improving Inventory visibility and availability for the remanufacturing supply chain.

The *spend value* for logistics also increased by the weeding out the undesirables and removing non-value added activity from the handling, packaging, shipping, storing, of materials.

Overall these projects produced a $2M Plus benefit to Rolls-Royce.

Additionally an improved Repair *Yield-Rate benefit* is also being realized.

It is of immeasurable value when you have a team of professionals possessing the proper skillsets to help collaboratively attain your goals.

Clearly having a good team in place is paramount. Having a cross-organizational or cross-company team share in a common goal, with the proper skillsets, without concern for who gets all the credit – Priceless!

James W. Tilton, CPIM, LSSGB. Jim Tilton is a logistics manager for RR Corporation Global Repair Services: Americas in Indianapolis, Indiana. He Holds a BS in Management from Indiana Wesleyan University. Jim is APICS Certified in Production and Inventory management through the APICS CPIM Program. He is past president of the Central Indiana APICS Chapter and currently holds a position on the APICS Great Lakes District Staff. He is an APICS associate level instructor. He earned his Lean Six Sigma Green belt through Rolls-Royce.

11th Annual RLA Conference and Expo Las Vegas 2014

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February 10-13, 2014

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Monday offers pre-conference workshops with our RLA Charity Golf Tournament at Red Rock Country Club. Tuesday adds more workshops along with industry reports and then in the evening, our Awards Gala. Wednesday opens with the keynote address followed by sessions presented by over 150 RL professionals, leading academics, and industry leaders.

The Expo where 3PSPs will showcase their RL services and solutions.

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If you are a Reverse Logistics professional – don't miss this event!

Las Vegas 2014 - Workshops Schedule
Monday, February 10, 2014

7:30 AM – 4:00 PM

REGISTRATION OPEN

For security purposes, please have a photo ID and a business card ready when checking in at the registration desk.

8:00 AM – 11:00 AM

WORKSHOPS

Gailen Vick
Executive Director
REVERSE LOGISTICS ASSOCIATION®

Dr. John Ryan
The Sanitary Cold Chain
The Sanitary Cold Chain

Tony Sciarotta
REVERSE IT SALES & CONSULTING

11:00 AM – 5:00 PM

Charity Golf Tournament - Red Rock Country Club
RLA CHARITY GOLF TOURNAMENT

Sponsorships allow you to host your guests and take advantage of this great networking opportunity. Buses leave at 11:00 am for 18 holes and1:00 pm for 9 holes of golf from the Rotunda passenger drop-off.

If you would like to participate or be a sponsor, please contactfelecia@RLA.org.
Sponsorships for this event are still available.

Las Vegas 2014 - Workshops Schedule
Tuesday, February 11, 2014

8:00 AM – 4:00 PM

REGISTRATION OPEN

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9:00 AM – 5:00 PM

WORKSHOPS

Michael Blumberg
Blumberg Advisory Group, Inc., President
BLUMBERG Advisory Group

Dr. John Ryan
The Sanitary Cold Chain
The Sanitary Cold Chain

Gailen Vick
Executive Director
REVERSE LOGISTICS ASSOCIATION®

Tony Sciarotta
Reverse It Sales and Consulting
REVERSE IT SALES & CONSULTING

1:00 PM – 5:00 PM EXHIBIT HALL OPEN

12:00 PM – 1:15 PM COMMITTEE CHAIRPERSON LUNCH

1:30 PM – 2:30 PM RLA ADVISORY BOARD MEETING/LUNCHEON

2:30 PM -5:00 PM RLA COMMITTEE REPORTS

CONSUMER ELECTRONICS
Paul Baum, CEO
PlanITROI
Plan·IT·ROI

DATA STORAGE
Tom Burnam
Dir. Global Service Operations
Western Digital
Western Digital

SOFTWARE SOLUTIONS
Leonard Schneeman
Sr. Vice President, Chief Technology Officer
DEX
DEX

STANDARDS
Ron Lembke
Associate Professor
University of Nevada

RL CERTIFICATION
Tony Sciarotta
Reverse It Sales and Consulting
REVERSE IT SALES & CONSULTING

5:00 PM – 8 PM AWARDS GALA

Las Vegas 2014 - Workshops Schedule
Tuesday, February 11, 2014

8:00 AM – 5:30 PM

REGISTRATION OPEN

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10:00 AM

WELCOME REMARKS & KEYNOTE

Gailen Vick
Executive Director
REVERSE LOGISTICS ASSOCIATION

Don Patch
Director of Global Logistics
iRobot Corporation
iRobot

11:30 PM – 12:30 PM BUFFET LUNCH

12:30 PM – 5:30 PM CONFERENCE SESSIONS

Mark Erickson
National Account Mgr.
P&F USA
p&f usa

James Tilton
Logistics Manager
Rolls-Royce Corp.

Dave Moloney
Sr. Mgr. RL & Bus Sys
Google
Google

David Conti
Materials Control
Engineering Manager
Nikon
Nikon

Keith Dawson
Dir., Secondary Markets
Sealy
Sealy

Lois Kamysiak
Global Reverse Logistics
Intel
intel

Mark McDonald
Tony Sciarrotta
Reverse It Sales & Consulting
REVERSE IT SALES & CONSULTING

Michael Bonino
Warehouse Operations Mgr.
Sony
SONY

Robert Rodriguez
Director, Customer
Care & Quality
Alcatel One Touch
ALCATEL onetouch

Justin Harding
Product and Reverse
Logistics Manager
Cincinnati Bell Wireless
Cincinnati Bell

Amedio Palmieri
Executive Director
Global Supply Chain
Lenovo
lenovo

Aly Pinder Jr
Research Analyst
Aberdeen Group
Aberdeen Group

Andrew Katcher
President
Rapid Results, Inc.
Rapid Results, Inc.

Joe Kripli
Global Business
Development Leader
APRA
apra

Mauricio Salinas
RL Program Manager
Cisco
cisco

Rachel North
Dir., Post Sales Operations
Toshiba America Electronic Components, Inc.
TOSHIBA

Heather Raymond
Bus. Solutions
Development Program Mgr.
Intel
intel

Michael Blumberg
President
Blumberg Advisory Group, Inc.
BLUMBERG

Robert McIntosh
Executive Director
Dell, Inc.
DELL

Thomas Burman
Dir. Global Service Operations
Western Digital
Western Digital

5:30 PM – 7:30 PM CONFERENCE RECEPTION

Las Vegas 2014 - Workshops Schedule
Thursday, February 13, 2014

8:00 AM – 11:00 AM

REGISTRATION OPEN

For security purposes, please have a photo ID and a business card ready when checking in at the registration desk.

9:00 AM – 12:00 PM

CONFERENCE SESSIONS

Mark McDonald
Principal Consultant
MarkQ Consulting
MarkQ Consulting

Thomas Maher
Vice President,
Global Service Parts
DELL

Kathy Murphy
Sr. Sales Operations Mgr.
JARDEN CONSUMER SOLUTIONS
JARDEN consumer solutions

Rubina Farooq
Director Reverse Logistics
LG Electronics
LG Life's Good

Steven Koenig
Director, Industry Analysis
CEA
CEA

Haozhe Chen
Assistant Professor
East Carolina University
East Carolina COLLEGE OF BUSINESS

Douglas Schmitt
Vice President
Dell, Inc.
DELL

12:00 NOON

CLOSING REMARKS / LUCKY DRAW

Lucky Draw Sponsorship Available. Must be present during the drawing to win.

ARTICLE

Sneakers with a Purpose

by Gary Gagnon, Founder and President of ReKixx cool sneakers 100% recyclable

With more than 300 million pairs of shoes thrown away last year, in the U.S. alone (soles4souls.org), ReKixx® is taking matters into their own feet.

It was June 2009 when, as a husband and a father, I first had the idea of ReKixx: cool sneakers 100% recyclable. I was preparing to take out the garbage when I saw a pair of my wife's old shoes and my boys' beaten sneakers in the trash, right next to the recycling bin. As an avid, suburban recycler, I thought, wouldn't it be nice if we could recycle our shoes instead of throwing them in the trash!? I went to work.

Fast forward 4+ years where the effort to bring a completely recyclable, and cool sneaker to market is beginning to unfold. With ReKixx currently in the launch phase of its 2014 collection, only available on Kickstarter, I am happy to finally be clear of the testing and retesting stage. Having gone through extensive research, several material trials, and lab tests, I am newly energized to get my product, brand, and message out there now for public awareness and consumer support.

It was my approach, if could find a way to reduce or eliminate some shoes (at least my shoes) from going into our landfills, I would be creating something worthwhile. I looked at the supply-chain and life-cycle of sneakers with a plan to create a greener channel for footwear. Sneakers became my vehicle to drive improvements in recycling and to encourage individual behaviors to promote green-living.

ReKixx are manufactured using a unique mix of materials that look and feel like canvas and rubber but are made entirely from a special custom blend of lab certified 100% recyclable materials. It is with our unique mix of materials and proprietary construction, that all parts together, of your worn and beaten ReKixx sneakers, can be recycled or "ReKixx-ed" to make new products and materials, including a new pair of ReKixx. Now, to guarantee, when your beaten ReKixx sneakers have absolutely no kick left, send them back to us where, from laces to sole, your ReKixx will in fact remain the only completely Landfill-Free Sneakers™. We call it Honest & True Recycability. Likewise, as the ReKixx effort grows, it is the goal that your worn ReKixx sneakers will be accepted for deposit directly into your curbside recycling bucket just like your #1 plastic water bottles and your #5 plastic yogurt cups and butter tubs.

Today with ReKixx as the world's first and only completely Landfill-Free Sneaker it is our charge is to deliver an enjoyable sustainable sneaker that can advocate and initiate improvements in recycling. ReKixx are: Sneakers with a Purpose™.

For the good of your feet, for the good of the planet . . . reduce, reuse, ReKixx ™

Find more information at www.ReKixx.com.

Gary Gagnon, originally from Cherry Hill, NJ is a graduate of Rowan University with a BA in Education and a MA in Organizational Leadership. Today he resides in Charlotte, NC with his wife and two boys. He has 20+ years experience in teaching, management, procurement, consumer goods, and licensing. He is currently Director of Business Development for an industry leading manufacture while his sneakers run part-time. He dreams someday to be managing ReKixx full-time where he can work side by side with his boys.

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ARTICLE

Why Manufacturers & Distributors Should Look Beyond Their Core Competency: M&A to Innovate

by Tom Racciatti, West Monroe Partners

In the age of rapid changes within healthcare, technology, bio-tech and other dynamic industries, the sometimes forgotten manufacturing & distribution (M&D) sector continues to look for new ways to produce existing consumer and industrial products more efficiently and to bring new products to the market. Despite being considered a stagnant industry in the minds of many, manufacturers, distributors and logistics providers must continue to innovate and adapt, especially as technology makes its way into M&D (in many forms, from the smart

technology in your car or on your phone, to implanted medical devices). As manufacturers, distributors and logistics providers pursue these new markets, a slew of operational complications are surfacing – including a lagging experience curve position and unwinding the reverse logistics of new products to efficiently reuse or repurpose materials.

Should the focus of operators expand beyond their four walls and distribution channels? Operations-focused management teams throughout the M&D industry are intensely focused on trying to squeeze as many cents per unit out of their operations as possible (as opposed to pursuing more transformational business opportunities leading to innovation). Recent logistics-related points of emphasis have been on outsourcing and offshoring the labor-heavy components of M&D operations to reduce labor and personal protective equipment costs. This shift is now being reversed in the name of right-sourcing/re-shoring, which has emerged to address perceived productivity and quality declines from offshore operations. In the US, additional factors bringing back domestic labor include improvements in domestic energy production and costs, rising wages overseas, government incentives and the trend towards locating production closer to consumers. These kinds of efforts focused on fractional operations-based savings, while valid and powerful when optimized to significantly reduce the cost-to-serve your customers, can require massive planning and focus while carrying significant business risk and disruption. Instead of focusing solely on evolutionary unit cost savings, operators should also be allowed and encouraged to look for revolutionary business change by considering markets and product groups outside of the business' current core industry, creating innovation through the combination of distinct business solutions.

The opportunity to selectively expand beyond your core industry was brought to mind upon reading about Lexmark International's acquisition of Acuo Technologies right here in my backyard in Minnesota earlier in 2013. At its core, Lexmark is a manufacturer of laser printers; however, with a prior acquisition of Perceptive Software, Lexmark began to provide technology solutions to the healthcare sector. With the Acuo acquisition, Lexmark now offers better patient care, enhanced clinician experience and cost savings through an enterprise-wide platform for clinical content viewing (accessible by any electronic medical record system as a "Universal Clinical Platform"). It's incredible to think that a printer manufacturer is changing and improving the way we are being cared for as patients, all the while returning 50% of free cash flow to shareholders.

What is the Reverse Logistics Association?

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To view this video without iTunes:
http://www.youtube.com/watch?v=ImqPO4r5XF4

At this year's RLA Conference & Expo in Las Vegas you may have noticed a television crew roaming around. The crew was there to capture response to the conference and make a video that displayed the essence of the Reverse Logistics Association. They were also filming segments for a new video series in RL Digital magazine called RLA Rewound. As you view it, you may see some familiar faces. A big thank you to everyone who took time out from their busy conference schedule to stop and talk with our reporter. We hope you will share the video with friends and colleagues as you introduce them to the association and explain what we do and how we can support them. Stay tuned, because we may be talking to you for the next series of videos for RLA Rewound.

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The same trend can be seen on the "D" side of M&D, with distribution and logistics companies expanding into broader solution sets for their existing and new customers, as exemplified by Flextronics' recent acquisition of RIWISA AG. Flextronics is a leading end-to-end supply chain solutions company that delivers design, engineering, manufacturing and logistics services to a range of industries. On November 4, 2013, Flextronics announced its acquisition of RIWISA's state-of–the-art manufacturing facilities and highly-experienced employees in medical, consumer packaging and industrial products, thus expanding into injection molding from a distinct platform base of logistics services and serving as another example of cross-industry acquisition.

What does this mean for M&D corporate development? If innovation and external-industry insights lie outside of your organization, it may be time to look at a merger or acquisition to capitalize on these opportunities. This is not a suggestion for more standard horizontal or vertical integrations, but rather cross-industry integration. This is a recommendation to go against what's being discussed in MBA classrooms around the country in terms of focusing exclusively on your core competency and considering anything beyond that a distraction from maximizing profit; rather, this recommendation and noted trend is to look beyond your core competency and determine how your company's product(s) could fit a customer need if converged with another company's primary focus.

Who should be thinking of industry cross-over within your organization? While identifying M&A opportunities often falls within the responsibility of a classic corporate development or strategic CEO role, cross-industry insights will likely require input from various internal functions. First, make sure you have strong collaboration between your supply chain operations and your sales and marketing team so that you truly understand the cost-to-serve your customers. Through a cost-to-serve exercise, you will understand where your profits lie and where you can improve your operations. But, equally important, you will open and establish the right lines of communication between both departments. The same philosophy of cross-function communication can be of value for cross-industry mergers and acquisitions. If you start with the voice of the customer (what is your sales and marketing team hearing from your audiences?), and then work back to product features from your operational leaders (COO, Director/VP of Supply Chain/Logistics), you can blend those perspectives to discover alternative and potentially disruptive solutions that might fill a need for current customers, or create demand from new ones. This internal collaboration can provide insights to drive outside-the-box prospecting and targeting of potential partners – well beyond the limits of your industry as it is defined today.

How are core operations affected? A negative experience curve position, "key man risk" and overall knowledge transfer are struggles associated with any transaction; however, these issues are even more critical when expanding outside of your core competency. Identifying, retaining and correctly positioning resources with inherent knowledge of the new market, product or features is paramount to successfully transition into a new industry – even at the sacrifice of short-term synergy wins through selling, general and administrative headcount reduction.

Often an afterthought in any transaction, reverse logistics can also play a large role in optimizing new operations – as the efficient reuse, sale or disposal of products related to cross-industry production can lead to important operating margin points and the closing of the experience curve gap with entrenched industry players (in the case of the market not being a new one created by your expansion). If returns management, remanufacturing, costly disposal or other reverse logistics issues exist in the new business, there are likely opportunities to cut supply chain costs, and more importantly, to foster

customer retention through meeting customer/consumer needs in the event of merchandise returns. Analyzing reverse logistics data internally or through a third party logistics provider immediately following any significant change to your business will allow for appropriate course corrections and customization of your material flow patterns so you can enter your new market as a mature player.

Contrary to public perception, the manufacturing and distribution industry isn't stuck in the past. Advances in technology and consumer demand have made room for M&D organizations to grow into agile, global competitors – but taking advantage of these opportunities might require firms to move outside of their comfort zones. By combining their primary strengths with those of businesses across industries, manufacturers and distributors can tap into new talents, new ideas and a new mode of operating.

Tom Racciatti is a senior manager in West Monroe Partners' mergers and acquisitions practice and is based in the firm's Minneapolis office. He can be reached at tracciatti@westmonroepartners.com.

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ARTICLE

It's 2014; Do You Know Where the Counterfeits Are?

by Marc Rosenblatt, Veracity Network, Inc.

When considering the tremendous growth of the counterfeit drug market both in the U.S. and throughout the world, we are more inclined to focus on the forward side of the supply chain. Furthermore, the industry along with government officials have concentrated almost entirely on track and trace solutions which, while offering a level of protection against diversion, does not ensure the quality of the product inside the package.

Figure 1: XT250 Pharmaceutical Screening System

In an effort to understand where counterfeits are entering the supply chain, Veracity Network, Inc. "Veracity" conducted pilot programs at strategic points in the U.S. supply chain with companies representing manufacturers, distributors and return companies. By utilizing an innovative technology designed specifically for the supply chain environment, non-technical personnel are able to easily and quickly verify the authenticity of the pharmaceutical product while still in their sealed packaging. With just the push of a button, the XT250™ Pharmaceutical Screening System (see Figure 1) easily detects counterfeit product, displaying results as simple pass/fail in as little as 20 seconds. The XT250™ examines crystalline structures of a sample object, inside any sealed container, using Energy Dispersive X-Ray Diffraction (EDXRD). X-ray Diffraction is widely recognized as the most reliable tool for the crystal structure analysis of pharmaceutical solids and crystal form identification. This methodology consists of applying an x-ray beam through a sample object and then collecting the diffracted x-ray pattern "fingerprint". The diffraction pattern is then processed through a Material Recognition Software Engine (MRSE), which then compares the unique features of the Sample Material against the selected Reference Material in the MRSE library database. Figure 2 illustrates the MRSE matching process. This particular example displays the fingerprint for counterfeit Artesunate (used primarily for the treatment of malaria) matched up against authentic Artesunate found in the MRSE library.

Based on the results of the pilot programs (see Figure 3), there is great concern that counterfeit product affects many areas in the U.S. supply chain. Of even greater concern is that the highest counterfeit rates were found in return areas. Compared to the World Health Organization's counterfeit estimate of 3% of the U.S. drug supply, these areas appear to be an easy way for counterfeiters to make money. This should not be a total surprise given that counterfeits can be introduced at various points in the supply chain eventually flowing downstream to returns areas.

Let's examine the two types of product returns:

Salable product return areas are a major threat given the potentially dangerous product can be restocked and sold to another customer. An unsettling example of this occurred during one of our distributor pilot programs. The system detected a number of counterfeit products that were sent back as returns. Upon further examination, it was discovered that the sealed bottles contained counterfeit replacements for the valid product. Unfortunately, this type of activity is all too common, threatening the safety of the general public and costing the industry million of dollars each year. By deploying counterfeit detection technology as part of their salable returns process, all returns would be screened prior to the acceptance of a return.

On the other end of the spectrum are unsalable returns. These returns are typically sent back through return processors whose primary role is to handle the final disposition of the product and determine the customer's credit compensation. Given that these types of returns are not introduced back into distribution, there has been little to no attention paid to this area. This mindset is exactly why counterfeiters love reverse logistics. Manufacturers typically are only informed of a small fraction of the counterfeit products that are in distribution at any given time. Tests are performed by the manufacturer in an attempt to understand the counterfeit formulation and collect data that will be used for investigation and potential prosecution. By deploying counterfeit detection technology as part of the unsalable returns process, the manufacturer would have access to considerably more counterfeit product and more importantly would be able to conduct geographic trend analysis of specific formulations.

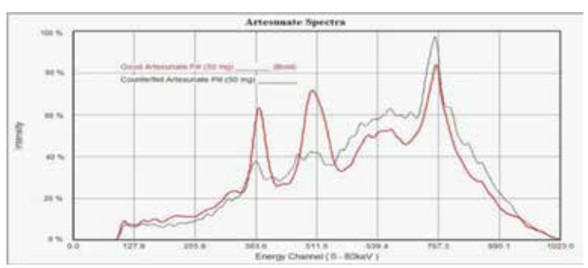

Figure 2: MRSE Material Matching Process

Manufacturer & Distributors	Sample Size	Pass	Fail	Fail %
Company 1	65,092	63,289	1,803	2.8%
Company 2	24,760	22,896	1,864	7.5%
Company 3	1,646	1,573	73	4.4%
Company 4	3,590	3,465	125	3.5%
Salable Returns Total	95,088	91,223	3,865	4.1%

Return Companies	Sample Size	Passes	Fail	Fail %
Company A	1,073	976	97	9.0%
Company B	413	385	28	6.8%
Company C	214	179	35	16.4%
Unsalable Returns Total	1,700	1,540	160	9.4%

Figure 3: Results from pilot programs – return areas only

Regardless of the type of return, there are financial implications that ultimately impact the entire industry. By eliminating the credit compensation associated with counterfeit product returns and ease of access, we are directly or indirectly taking money from the counterfeiters and putting it back into the legitimate supply chain. Everyone, except the counterfeiters, wins.

In summary, the counterfeit industry continues to be a low-risk, high-reward business and outside of non-intrusive methods (i.e. pedigree, holograms, 2D, RFID), which have had limited success, the industry has struggled with providing protection against counterfeits. While these non-intrusive methods enhance the security of the supply chain, they do not test the material inside the sealed bottle and therefore provide only limited protection. Proposed legislation introduces a uniform system of tracking and tracing drugs, which on its own will not prevent counterfeits from entering the supply chain. Management training has drilled into our brains to "think outside the box" to come up with the best solution to the counterfeit problem. Perhaps it's time we stop thinking outside the box and actually start looking at what's inside the box. The challenge is getting supply chain partners to work together and recognize their level of responsibility in protecting the general public. In the end, the only losers are the counterfeiters.

Marc Rosenblatt is the Director of Business Development for Veracity Network, Inc. Veracity provides technology and services to protect the pharmaceutical supply chain. Mr. Rosenblatt has over 15 years of reverse logistics experience within the pharmaceutical industry providing innovative solutions to pharmaceutical manufacturers, distributors, hospitals, pharmacies, and government agencies. Mr. Rosenblatt holds a Bachelors of Business Administration from Hofstra University.

For additional information, please contact Marc Rosenblatt, Director of Business Development at marcrosenblatt@veracitynetwork.us

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- Student Intern Positions

ARTICLE

Reverse Logistics: Product Life Cycle Management

by Ken Jacobsen

Proposal for a new industry standard: A schema for a reverse logistics product labeling standard.

There is a mature standard for packaging bar code labeling for forward logistics, but what about a standardized product QR code label for reverse logistics?

There are two primary motives for reverse logistics: product returns and end-of-life product disposal. Of the two, product returns is clearly and legally the responsibility of the manufacturer. There are numerous initiatives, and laws in some states, to make product disposal also the responsibility of the manufacturer.

There is no argument that e-waste is a problem. Americans get rid of 47.4 million computers, 27.2 million televisions, and 141 million mobile devices annually, according to the latest figures from the Environmental Protection Agency. Only a quarter of all those devices are collected for recycling. Many of these—if not most, contain toxic materials such as lead, mercury, and cadmium. Most also contain precious and recyclable metals and materials. A million cell phones, for example, contain 35,000 pounds of copper, 772 pounds of silver, 75 pounds of gold, and 33 pounds of palladium. According to the Consumer Electronics Association, Americans are projected to purchase 130 million new smartphones, 116 million new tablets, and 26 million laptops this year—tomorrow's trash. The average American home contains 24 consumer devices.

IBM maintains one of the most aggressive product recycling programs and reports that less than one percent of their "harvesting" efforts end up incinerated or in a land fill[1]. In 2012 the Consumer Electronics Association (CEA) recorded over 8,000 eCycling locations in the US and growing. Their goal is to recycle one billion pounds of consumer electronics by 2016. Further incentivized by global legislation such as EPEAT[2], RoHS[3], WEEE[4] as well as the California Electronic Waste Recycling Act of 2003 (EWRA) along with changing social attitudes, there is every reason to expect further expansion of such noble efforts.

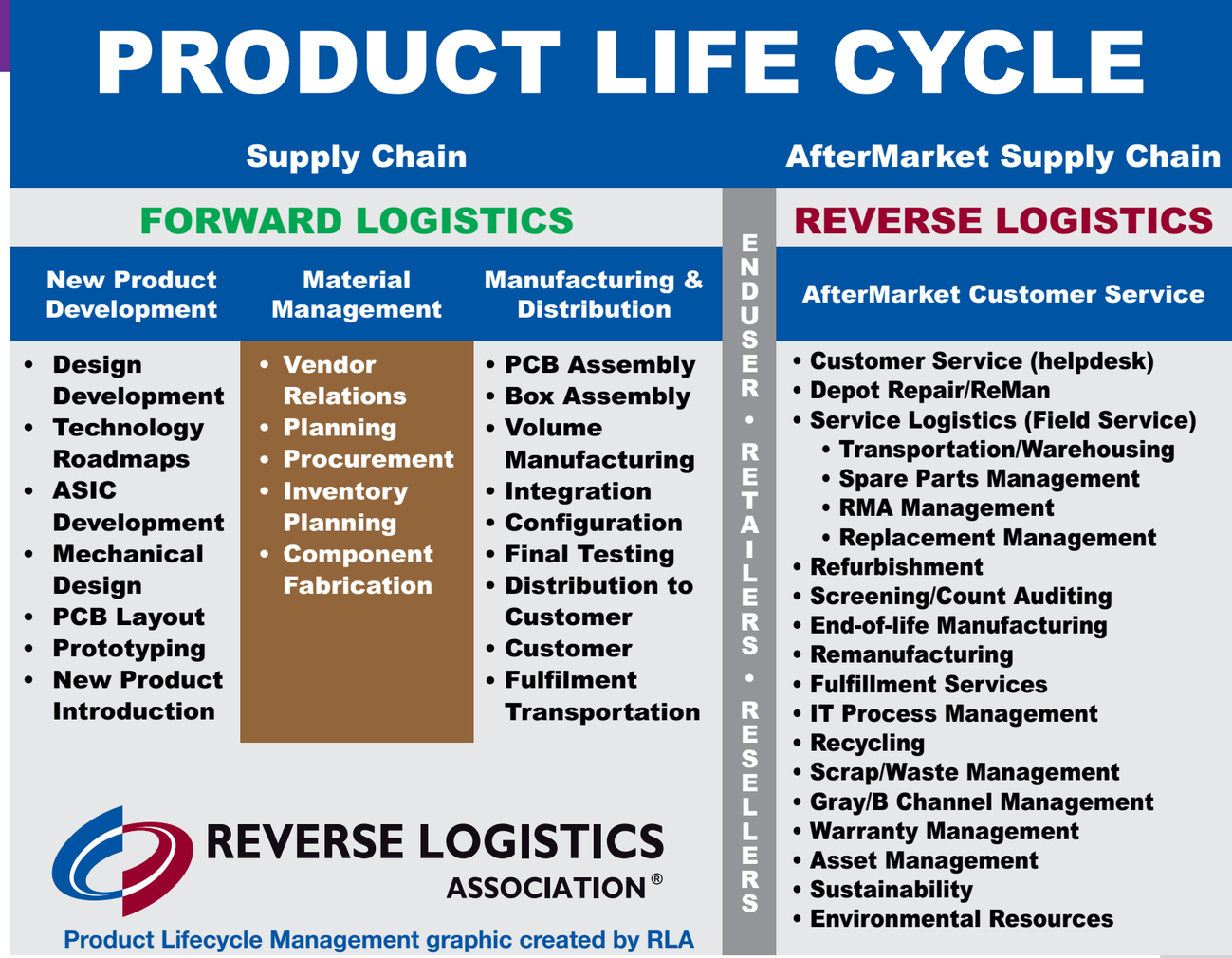
> **"How do I dispose of my left-over paint?**
> **Or**
> **"Where can I sell my old cell phone?"**
>
> Both questions can be easily answered—especially using geo-tagging with today's technology. But it requires a standardized product label. The RLA can develop such a standard!

There are a few lapses in the recycling process that can be alleviated by some new standards directly related to Reverse Logistics. Where and how to recycle any given product is often a mystery. A person wanting to properly dispose of an old CRT television, an old refrigerator, an old clothes drier, and a laptop computer may have to go to four different places. The problem is, where? This is especially relevant as some communities sponsor ad hoc drop off centers. What can go where on any given day?

With modern search engines and mapping technologies that include geo-tagging, the problem is not that hard to solve if the proper information is available. The proper information is known to the manufacturer and sometimes communicated in product documentation; but few consumers keep such information in discoverable places. We propose the creation of a labeling standard using tags and QR codes that could be placed on product packaging and on the products themselves that would contain sufficient data that could be up loaded into search engines. Real-time geo-tagging could identify appropriate disposal options. It can be projected that as the recycling industry becomes more sophisticated, there may even come to pass bidding wars over more valuable junk. Recycled phones and metal can be sold. Not to mention the fact that warranty management and merchandise returns would be more efficient if information were standardized. Today, such a standard does not exist. As a result it has not possible to "automate" the disposal of goods at the end-of-life.

With today's scanning technology, there is plenty of room to encode lots of information. The QR Code itself is well standardized (ISO/IEC, 2005). But there is no official standard for QR contents. Well over 4000 characters are available to communicate a wealth of information that would be useful for all aspects of reverse logistics. Such a label could include the data provided in a UPC code, the product serial number and other information. It could include information such as manufacturing site, date of manufacture, expiration date. Length of warranty can be added along with EPEAT, RoHS compliance, etc.. There would still be sufficient "optional" space to include the marketing information that currently dominates the current application of QR coding. We would not have to standardize the technology: only the schema of the content.

It could well be that something as simple as the standardized tags on content in a QR code could greatly improve efficiencies in reverse logistics—both for product disposal and for product returns. The benefits of such encoding could help many fields. Consider not just e-waste, but the encoding system could provide instructions for the disposal or recycling of hazardous materials such as paint, motor oil, or pharmaceuticals.



Product Lifecycle Management graphic created by RLA

With over 4000 characters available for coding, disposal instructions could be accessed through web sites accessed through the QR code. "How to properly dispose of florescent bulbs," can be a page accessed through a QR code imprinted on the bulb.

The Reverse Logistics Association is the ideal trade association to promote and manage such a product label encoding schema. For over a decade, our organization has been providing leadership and training in issues specifically focused on product returns and product end-of-life disposal. With over 6000 members and 90,000 subscribers to our magazine, we understand the needs of this industry from a practitioner's perspective. We are not the only stake holders, however, and we are inviting other associations and interested industries to participate in the creation of a standardized product label. Four thousand characters is a lot of data. We want to do it once, and do it correctly.

There are many possibilities for data fields. With modern QR Code technology, there is room to include most of these—if not all. There are many stake holders: other trade associations, standards bodies, environmental projects. Each could contribute an encoded field. From that, small applications can be developed that seek the field designators and interprets the data.

The Reverse Logistics Association sees the value in this type of labeling to the degree that we will sponsor it, and maintain the resulting library. However, we need input as to what data fields should be designated. Thus, we are reaching out to stake holders to seek recommendations. The criteria for acceptance is broad. The recommended field must apply to a generic class of products and contain information relevant to either product returns or product disposal. The information must be useful. The information must be efficient; perhaps pointing to designated URLs for more detailed information. Finally it should be noted that the RLA is not assuming the responsibility for the creation of applications that will act upon the data fields designated with these codes.

We are at this time forming a sub-committee to polish this concept. This spring we will publish a proposed library of fields. We will then hold a "public" webinar to discuss the proposal. It is our intention to approve the resulting proposal at the June RLA conference in Amsterdam. At this time, we are seeking volunteers for the sub-committee. If you are interested please contact Ken Jacobsen, co-chair of the RLA Standards Committee at ken@jacobsen46.com or by phone at 510-490-7095, or simply sign up at www.RLA.ORG and join our effort.

References

[1]Bloomberg Businessweek, Jan 8, 2013 The Complex Business of Recycling E-Waste. It should be noted that both IBM and HP have strict supplier requirements regarding environmental issues.

[2]IEEE 1680 family of 'green electronics' standards that identify products as EPEAT Bronze, Silver or Gold

[3]The Restriction of Hazardous Substances Directive 2002/95/EC, RoHS, short for Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment, was adopted in February 2003 by the European Union.

[4]The Waste Electrical and Electronic Equipment Directive (WEEE Directive) is the European Community directive 2002/96/EC on waste electrical and electronic equipment (WEEE) which, became European Law in February 2003.

Mr. Jacobsen is the Vice President of Business Developement for Connexus: a silicon valley software company focused on warranty management. He was responsible for the creation of the InfraRed Data Association (IrDA) and for the establishment of the PCMCIA. He has provided technology brokering services for HP, Toshiba, and Lockheed. He was part of the Pocket Intelligence Program at SRI, International and has been involved in numerous startups. Most recently, he was a Director of the Global Software Entrepreneurial Training Program at Oulu University in Finland.

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ARTICLE

The Concept of Reverse Logistics. A Review of Literature

by Dr. Isabel Fernández Quesada

Reverse Logistics (RL) is an issue that has received growing attention in the last decades, due to the occurrence and simultaneity of several situations. On the one hand, there is a verifiable concern about environmental matters and sustainable development, as the many legal regulations that have been passed in a number of countries prove. On the other hand, economical reasons have also had their contribution in this increasing importance of RL issues. If operations are a major source of value-added (Porter 1985), by means of the returned products, companies stand the possibility of recovering either constituent material (that would no longer need to be purchased in the same quantities) or added value. Whether the savings come only from materials, labour or/and overhead costs, some firms have already shown increasing interest in being efficiently involved as market competition shrinks the margins more and more.

Perhaps due to its rapidly growing importance, the concept of RL took a while in being widely defined. In fact, as several authors contended at that time (Fleischman 2000; Mason 2002; Soto & Ramalhinho 2002; Kivinen 2002), there was not a largely accepted consensus about defining RL in practice. There were also other broad topics feasible of being covered by it, such as activities, products, points in the supply chain, etc. Given definitions sometimes overlapped in only certain aspects. Some others could be judged as giving only a partial vision, whereas in yet other cases, they could become controversial. To illustrate the development of the RL concept let us go revising some initial definitions extracted from a past literature review and analysing some terms, which were detected to be the main source for the different interpretations.

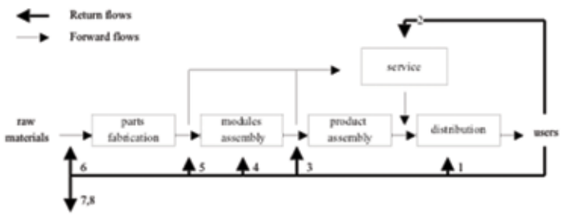
REVIEW OF LITERATURE

Beckley & Logan (1948), Terry (1869) and Giultinian & Nwokoye (1975) had already paid attention to returns but without referring to them as RL flows. Murphy (1986) is arguably one of the first authors in using the basic concept of RL. He used Reverse Distribution as an equivalent term ; after him, the double terminology was also kept in some cases (Pohlen & Farris 1992; Barry, Girard & Perras 1993; Bloemhof-Ruwaard, van Beek, Hordijk & Van Wassenhove 1995; Carter & Ellram 1998; Jayaraman, Patterson & Rolland 2003). Murphy defined Reverse Distribution (1986: 12) as " the movement of goods from a consumer towards a producer in a channel of distribution". Therefore, this author already touched upon the backwards direction of flows in order for them to be considered as RL flows. The original manufacturer is not necessarily the "producer" in this definition. As far as the distribution channel is concerned, nothing was specified in the definition. Doubts could arise between the two main possibilities to be distinguished: the referred distribution channel being the previously utilized (in the forward channel) or any other.

In 1992, Pohlen & Farris drew the attention to the fact that the recyclable material did not necessarily flow backwards through the same channel. The question that was raised then was what they meant by "recyclable": only products whose destination was recycling used different channels to go backwards? Or, were they using the word "recyclable" in a very broad sense of the term (meaning any product that could be returned)?

For Giuntini & Andel (1995a: 73) RL was defined as "an organization's management of material resources obtained from customers". With this definition, the authors skipped the problem of stating exactly the direction taken for the material resources. Even more, they seemed to stress just one aspect for a material resource flow to be considered as a RL flow; this unique feature referred to its origin. As long as the item came from the consumer, the activities operated on it would be considered RL activities.

In the same year 1995, Thierry, Salomon, Nunnen & Wassenhove coined the term "Product Recovery Management" (PRM) to describe "all those activities that encompass the management of all used and discarded products, components, and materials that fall under the responsibility of a manufacturing company. The objective of product recovery management is to recover as much of the economic (and ecological) value as reasonably possible, thereby reducing the ultimate quantities of waste" (Thierry et al. 1995: 114).



Waste Management	Product Recovery Management	Direct Reuse
7. Incineration 8. Landfill	5. Cannibalisation 6. Recycling 2. Repair 3. Refurbishing 4. Remanufacturing	1. Direct reuse/ resale

Figure. Thierry et al.'s integrated supply chain view (1995: 18)

According to them, products and materials could be sent back either to the original manufacturer (therefore, in the same business chain), or to other companies involved in other business chains, provided the activity of these companies consisted of manufacturing.

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Conf & Expo: Singapore 2014
September 23-24, 2013

They distinguished three categories of activities: service, product recovery and waste management activities. Returned products and components could be resold directly, recovered, or disposed of (incinerated or put to landfill). Focusing only on recovery options, five different further alternatives could be found: repair, refurbishing, remanufacturing, cannibalisation, and recycling, listed in order of the degree of disassembly required.

Although it has to be noted that these authors did not use the term RL, a parallelism could be easily drawn from the mention of the activities included within the PRM' scope and the direction followed by the recovered items. Another conclusion from their work is that Direct reuse/ resale, Incineration and Landfilling were kept out from the PRM coverage even if some backwards flow was also implied in these three options.

"RL refers to the logistics management skills and activities involved in reducing, managing and disposing of hazardous or non-hazardous waste from packaging and products" (Kroon & Vrijens 1995: 56). This definition made evident the extent to which, so far, confronting concepts could be found in the literature. If Thierry et al. had discarded waste management from their PRM definition, these authors seemed to focus on it. Kroon & Vrijens' article was concerned with the flows generated by the returnable containers, which are a type of secondary packaging in the sense that they are susceptible of being used more than once in the same form.

According to Stock (1998: 20), the term RL was used to refer to "the role of logistics in product returns, source reduction, recycling, material substitution, reuse of materials, waste disposal, and refurbishing, repair and remanufacturing". Although the majority of possible focuses, mentioned in the definition, had their correspondent translation in Thierry 's terms, Stock (like Kroon & Vrijens and unlike Thierry et al.) also emphasised the waste disposal aspect.

"RL is a process whereby companies can become more environmentally efficient through recycling, reusing and reducing the amount of materials used. Viewed narrowly, it can be thought of as the reverse distribution of materials among channel members. A more holistic RL view includes the materials reduction in the forward system in such a way that fewer materials flow back, reuse of materials is possible and recycling is facilitated" (Carter & Ellram 1998: 85). The fact of reducing materials used in the processes was according to some authors (Rogers & Tibben-Lembke 1998) considered as "green logistics" and not "RL", although the same authors agreed in that the boundary line between these both concepts was not always clear.

Krikke, Harten & Schuur (1999) mentioned the need for the European Original Equipment Manufacturers (OEM) to set up a reverse logistic system for their discarded products, which, according to the authors, involved determining an optimal degree of disassembly and assigning optimal recovery and disposal options. The OEM are in this case the point of destination for the return flows.

"The process of planning, implementing and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing or creating value or for proper disposal" was the definition of RL given by Rogers & Tibben-Lembke (1999: 2; 2001).

This definition, notably more ambitious, named different types of items (regardless their new or used condition) along with an idea of direction followed by the materials flows. However, solely the initial point of origin in traditional chain was accepted as destination of these reverse flows. When arguing the reason why source reduction, in their view, belonged more naturally to green logistics than to RL, they added (Rogers & Tibben-Lembke 1999: 3): "if no goods are being sent "backwards", the activity probably is not a RL activity".

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In spite of the comment, other possibilities were admitted within their particular RL scope, such as secondary markets, outlets, etc. even if these destinations are not the initial "point of origin".

The later remark also applies to the definition given by Dowlatshahi (2000: 143) when he contended that RL is "a process in which a manufacturer systematically accepts previously shipped products or parts from the point for consumption for possible recycling, remanufacturing or disposal". Therefore, he agreed with some previously mentioned starting and final points of the reverse flows, these being respectively the point of consumption and the original manufacturers. He differed however from other authors in discarding returns coming from other partners than consumers. Disposal was accepted to be within the scope of RL definition but secondary markets were not conceived within it.

Ritchie, Burnes, Whittle & Hey (2000) underlined that logistics did not stop with the delivery of goods to customers, but also offers the opportunity for stocks to be returned to suppliers via a feedback loop. Their perspective drew the attention again on the suppliers as final destination of returned products and thus, endorsing the backwards direction of goods flows.

Fleischmann (2000: 6), one of the few authors aware of the confusion surrounding the concept, concluded that "the process of planning, implementing and controlling the efficient, effective inbound flow and storage of secondary goods and related information opposite to the traditional supply chain direction for the purpose of recovering value or proper disposal" was the content of RL. As he recognized, municipal waste collection was not accepted within the definition's scope, as it did not concern flows opposite to the traditional supply chain direction. On the other hand, "upstream flow" substituted the producer destination of returned goods stated in some other definitions.

"The logistics of return flows, called RL, aimed at executing product recovery efficiently" (Hillegersberg, Zuidwijk, Nunen & Eijk 2001: 74). When the authors stressed the meaning of return flows they only admitted end of life (EOL) products either for customer use, or for obsolescence in the forward supply chain. Apart from the activities included by Thierry et al. (1995) within the PRM, Hillegersberg et al. (2001), unlike them, admitted also energy recovered by incineration in the definition. The list of products susceptible of returning was in this case more restricted.

A research report by Kivinen (2002) brought yet another perspective. He wrote that different service providers must have different types of RL concepts. For instance, some companies may speak only about the recycling of goods, which may actually include sophisticated features of RL. His piece of advice was therefore to define clearly, between the parties involved, how RL would be understood in their relationships, as different persons would most probably have different views about RL.

To conclude this review, one more definition from the RL Executive Council : "RL is the process of moving goods from their typical final destination to another point, for the purpose of capturing value otherwise unavailable, or for the proper disposal of the products".

SOME CONFUSING TERMS

The confusion detected in the definitions may be mainly due to some words that may have a close meaning in certain contexts or double meanings of the words. Let us discussed some of them in more detail.

What "BACKWARDS" Direction Means?

In accordance to the previous section, it is quite clear that no unanimity existed regarding the direction products take in RL, once they abandon the forward supply chain, which may happen at any point/time within it. Some authors (Carter & Ellram 1998; Dowlatshahi 2000; Ritchie et al. 2000; Guide, Jayaraman & Linton 2003) call a flow "reverse" whenever the direction of flow is exactly the opposite to the previously used forward one. That means the product comes back through the same channel, sent by a downstream supply chain partner.

Other authors, however, admitted the deviation of these returned products towards different channels as susceptible of being also considered as RL (Thierry et al. 1995; Fleischmann 2000; Reverse Logistics Executive Council). Recycling activities provide with a myriad of cases that are within this second broader sense "reverse", given that, on the one hand, recyclers interested in materials may be different from the original manufacturers (about all in secondary recycling). On the other hand, original manufacturers may not dispose of the specific equipment required for recycling.

Are Reverse Flows Equivalent to Flows of Returns

RL may refer to flows in reverse, that is, flows of goods that go in strictly backwards direction through the channel. However, another more ample perspective was found in the literature (Fleischman, Krikke, Dekker & Flapper 2000; Stavros, Costas & Theodore 2003), which refers to the management of returns not only in backwards direction but also, in forward direction once returned products have been transformed (repaired, remanufactured, etc.) and again come back to the markets. In this second sense, all operations where products, once having been returned, are involved are also considered within the RL scope.

Both perspectives coincide in considering Reverse Logistics flows those that are sent backwards along the supply chain (for instance, from end consumers to manufacturers). However, there was an obvious disagreement with regard to accept as RL activities those performed in order to send to the markets returned products already transformed.

Are "RECOVERY" and "REVERSE" Synonyms

Polemic was also caused by the terms "recovery" and "reverse", which are terms etymologically speaking not equivalents. According to the dictionary, the term recovery roots in the Latin term "recuperare" which means, "to take". However, the term reverse is the past participle of the Latin term "reversus" which means, "to turn back". From the previous meanings, it may be easily inferred that the signification of the term recovery is noticeably more ample than the one inferred from the term reverse. It could summarily be illustrated by stating that not all that is "taken" has to or needs to be "turn back".

In spite of their different meanings, both seem to be, in certain pieces of work, considered synonyms (as it also happens with a third term: "return").

What is the Difference Between Green and RL

Although these two terms have already been mentioned, it is worth to devote to them a special thought.

The increasing number of laws being passed mainly in the last decade with regard to the environment protection

has been remarkable. Both the sheer number, but also the laws becoming more stringent and demanding, may well have had a considerable influence for the terms "green logistics" and "RL" being likened. In this vein, Handfield & Nichols (1999) underlined the seminal role that the "green" issues will play in the future of this field. On the other hand, the survey carried out by Murphy, Poist & Braunschweig (1994) showed how 60% of the managers interviewed considered environmental issues to be very important in the business of their companies. These examples served to demonstrate the increasing weight of green given already at that moment.

Van Hoek (1999) contributed with his article to avoid mixing up RL with green logistics. The term "green logistics" was coined to refer to those practices within the supply chain that aim at reducing sources of waste and resources of consumption. They are not necessarily specific of RL processes. For instance, disassembly is an operation closely related to RL; it is critical before deciding, in many cases, what to do afterwards with the product (repair, remanufacture or recycle it). However, it will be only linked to Green Logistics in the design process if the disassembly operations are carefully thought for not going through destructive operations, which implied at least a loss of added value if not also materials. Furthermore, some forward logistics processes from original manufacturer to original customer could be also "green".

Recycling

The use of the term "recycling" may be a source of misunderstandings, as shown for instance, in the paper by Lave & Hendrickson (1999) where the lack of an agreement in U.S.A. when it comes to decide what constitutes the so-called Recycling of Municipal Solid Waste (MSW), or which part of the post-consumer waste has to be included in it, was already highlighted.

The most commonly accepted meaning is that recycling implies the fact of recovering materials, which take part in the composition of the recyclable product. Recycling therefore involves the higher degree of disassembly of the item. However, it is not unusual to come across a more general use of the term that implies any activity in the backwards process or any reusing option (see Pohlen & Farris II 1992; Guide et al. 1997; Azzone & Noci 1998 as some examples).

Recall

Similarly occurred with the term Recall. It is used to refer the reverse process of consumer goods, which could potentially endanger the customer. Efficient recall strategy is, in this sense, concerned with minimising public risk, getting back as many faulty products as possible and minimising cost and inconvenience for the customer and the company (Smith, Thomas & Quelch 1997; Rogers & Tibben-Lembke 1999; Ritchie et al. 2000; Muffatto & Payaro 2003). However, the term could be also found implying a more general perspective; in this case, recall a product equals to repossess the product by the manufacturer (Jayaraman et al. 2003).

CONCLUSION

This look back to the inception of the RL concept shows how this recent area within the supply chain management went through a refinement process to become the important issue that it is in today's businesses.

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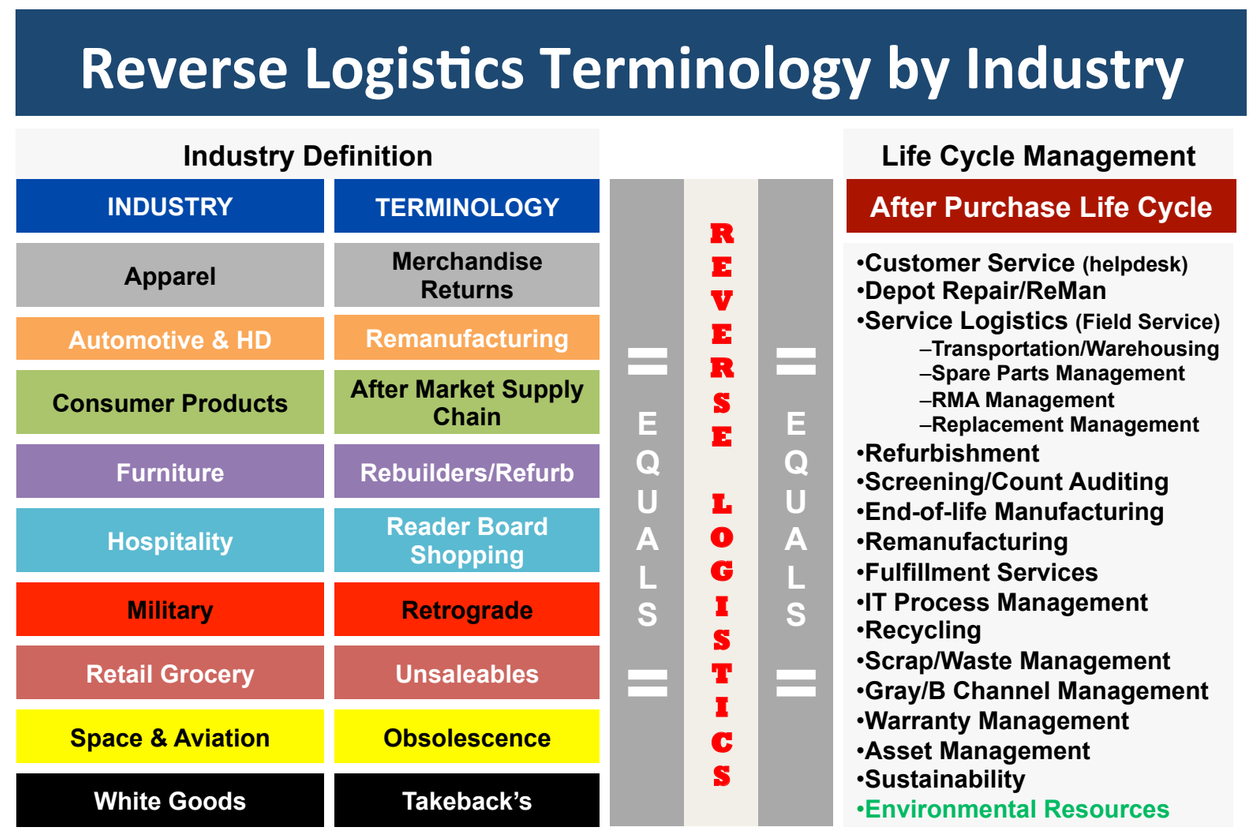

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Returning Thoughts

9 Tips for Extraordinary Reverse Logistics Warehouse Receiving, Sorting and Put Away

by Paul Rupnow

Reverse Logistics teams who take the time to really understand the Receiving process have the opportunity to impress their leaders, clients and financial teams by keeping costs low, returns flowing rapidly and creating the opportunity for much bigger financial gains from quicker recapture of higher values for the returned assets.

Unlike the forward logistics receiving process (inspect, match to expected receipt, put away), the Reverse Logistics receiving process is often more involved. But a more involved receiving process does not necessarily mean that Reverse Logistics Receiving is difficult.

The primary goal for the Receiving team is to receive and process quickly, but do not forget the next goal is to enable the highest value recapture for the returned items. An effective "Best Practices" Reverse Logistics Receiving team requires planning, defined processes and a software system to help manage and optimize the Receiving, Sorting and Put Away processing. With these things in place 3PL's (3rd Party Logistics Companies), 3rd Party Reverse Logistics Service Providers (3PSP's), Depot Repair providers, Manufacturers, Retailers, Fulfillment or E-commerce groups can generate significant savings and much higher asset recovery values.

The following 9 tips will help you assemble or refine your Reverse Logistics Warehouse Receiving, Sorting and Put Away processing:

1. Plan - have a plan for how you will handle and process each returned item, in any condition, from the second it arrives until the second it leaves the warehouse as refurbished, processed or scrapped.

2. Identification - identify Sender, RMA/Order, Item(s)/parts as the first step upon arrival. Additionally, many items benefit from a barcoded label, "license plate" or traveler for better tracking and quick identification as the item is processed.

3. Matching - after identifying the units, match the items to the RMA, to ensure it is eligible to be received. For retail returns, use a UPC barcode scanner for higher volume quick SKU item identification.

4. Condition Assessment - set an expected condition, such as New, New Open Box, As Is, Used or Needs Repair. Report any exceptions and reclassify.

5. Disposition Rules Engine - utilize all the data you have collected and combine it with condition and disposition plans to create "rules" that are utilized to prompt the warehouse staff to take action. Build the rules around:

   a. Item setup - setup your inventory items with as many attribute details as possible

   b. Grading/Condition system - determine how you wish to grade or describe the condition of your returned items, typically for easy resale, such as New, New Open Box, Refurbished, Used, Not Working.

   c. Highest Value Disposition channels for each item - determine your best value channel for each grade of the item

   d. Refurbishment or Processing streams - determine the possible streams you wish to flow the item though (both in and external to this facility) to repair, refurbish or upgrade it into the condition you need for highest resale value or to just flow the low value bulk items through with as few touches as possible.

6. Rules - with all the above data, many "rules" can be created so that each item is handled optimally at each step of your processing. Example rules: All items with current resale value less than $10 go to "bulk" stock to be sold as a large lot. All high value items with excessively damaged packing go to re-package location by manufacturer. All high value items in New Open Box grade B condition with a Priority Item flag go directly to outbound priority pick locations for immediate shipment availability. Providing the manufacturer/product owner with visibility to manage and create rules is essential to success of the processing and highest value recapture.

7. Put Away - use staging locations, pallets or bins to sort and consolidate "like" units and to enable group processing from stage to stage in your workflows.

8. Aging - most inventory items lose value rapidly when idle, furthermore idle inventory often means a decision needs to be made. Aging will prompt action and avoid decision paralysis.

9. Configurable workflow - not all units need to be processed in the same order, especially if the units arrive in different conditions. You will need the ability to create different workflows with different process orders for each item.

For the warehouse staff, the complexity is gone. Staff Training is simple. A good software system, rules and workflow make processing rapid and effective. The software does all the hard work and makes all the decisions for the user. The user is just instructed where to "Put Away" each unit at each step.

It is time to revisit the Reverse Logistics Receiving opportunity and convert these tips into action. Your clients, customers, finance team and CEO may be very impressed with the results

Good Luck!

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Paul Rupnow - Director, Reverse Logistics Systems, Andlor Logistics Systems Inc.

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FEATURE ARTICLE

Reverse Logistics Talk

Relationship Management and Communications Mitigate Threats in the Supply Chain

by Jennifer Bilodeau

Countless gaps throughout the supply chain place consumers, businesses, and suppliers at risk. Will the development of cooperative relationships identifying and mitigating risk help enhance protection and response throughout the supply chain?

Threats to the supply chain are limitless because it is a moving target presenting unique, changing challenges to identify and mitigate risk. Risks identified can involve theft, vandalism or tampering, counterfeiting, political unrest, drug related violence, corruption, terrorism, or natural disaster. The more hands involved throughout the supply chain, from the movement of goods from raw material to the end consumer create a complex web impacting many stakeholders in the event of a loss.

While communications in the strategic planning and implementation process can develop a clear, concise recovery plan to bring an organization back to full operational status, it is just as critical to include the human element into any risk management and response plan to maintain morale, trust, and maintain critical relationships throughout the supply chain. Overlooking the impact of a loss on employees create significant delays in the recovery process.

Financial Impacts

After the collapse of Wall Street in 2005, the financial implications have forced manufacturers to focus on protecting the supply chain. Lenders, insurers, and buyers are closely scrutinizing a manufacturers' ability to deliver product on time ensuring the company has the financial ability to fulfill an order. It is recommended practice to reassess the credit worthiness of suppliers and distributors to protect the liquidity of the organization, their ability to supply materials needed or pay the manufacturer on time. Delays in payment, delivery of goods, or a company filing bankruptcy extend beyond the inability to fulfill customer orders.

Increasing demands are forcing businesses to manage a wide range of threats to the supply chain as part of their strategic planning initiatives. With manufacturers fully adopting a "just-in-time" approach to reduce operating costs, increase working capital, and create a more efficient production processes, they have eliminated excess inventory. Shipping and manufacturing delays could create significant loss. Depending on the type of product, a company could face damage to the corporate brand, create a public health risk, or inflate costs of products. Security initiatives muse be designed to protect customers, the public, and the corporate brand.

Under the United State Patriot's Act, financial institutions are required to "Know Your Customer" in an effort to prevent money laundering and financial fraud that often funds terrorist activities. Although not required by law, risk management professionals throughout the supply chain are not only encouraged to know their customer, but to know all of the entities domestically and internationally who handle a product throughout the supply chain. Thomas (1995) reported that the fertilizer company that supplied chemicals to McVeigh and Nichols for the Oklahoma City bombing was forced to defend a class action liability suit. Plaintiffs alleged the manufacturer had knowledge that the fertilizer sold was highly explosive

and would cause significant damage if the product wound up in the hands of a bomb maker. They also alleged the manufacturer was negligent in detecting and reporting an unusual purchase pattern (LENA R. GAINESTABB, et al., Plaintiffs, v. ICI EXPLOSIVES USA, INC., CIV-95-719-R, 1996). McVeigh and Nichols used an alias to purchase one ton of the industrial fertilizer, followed by a second order of a ton eighteen days later. Plaintiff's alleged that the unusual purchase pattern should have been identified by the manufacturer and further investigated as part of their due diligence. Although the manufacturer's motion to dismiss the case was granted, the costs for legal defense in additional to the impact from publicity surrounding the case significantly damaged the company's' profitability.

Integrated software that manages the entire life cycle of a product from raw materials, distribution, defects in goods, determining profitability, as well as establishing transparency to assist in the detection of unusual activity or gaps in security. Companies are focusing on full integration of all tracking technologies to improve their ability to detect and mitigate risk. "In perfect form, asset tracking and visibility technologies should be integrated into the Enterprise Resource Planning (ERP) systems that govern the enterprise so that supply chain professionals have control at each step rather than risk fragmented visibility due to isolated technologies in manufacturing, warehousing and inventory, and logistics and distribution" (Cuban, 2010).

Cyber Threats

Nearly every aspect of the supply chain is interconnected through information systems tracking and monitoring goods throughout the life cycle. Cyber Threats could cripple communications creating lost visibility, leaving goods vulnerable to theft or tampering. A critical failure in the computer system could shut down a production line; compromise a consumer's personal identifiable information including credit card numbers; divulge shipping times and locations; or to compromise or steal intellectual property such as product plans. "Supply management organizations also need to understand and gain assurances from suppliers as to how they secure the data the organization is sharing with them." (Cohen, 2012).

Written policies are critical, and it is not unusual to develop contracts or agreements that would limit the liability of an organization sharing information with a supplier or vendor. It is difficult to assess the potential damage from a cyber-threat or to identify critical areas to enhance security without a cooperative effort. Relying of professional relationships with business partners, industry experts, and government agencies an organization can identify areas of concern or industry trends. By developing relationships with government, and industry professionals whose focus is protecting against cyber-crimes, a company can take immediate action to reduce the cost of recovery. Professional organizations have the resources to conduct intensive proactive threat assessments using tools and methods designed for predictive analysis. Manufacturers and suppliers focused on their primary business objective of developing or shipping goods and materials can not be expected to bear the full expense of complex and ever changing threats in communications.

It is critical to protect consumers' personal information as class action suits quickly surface due to the heightened awareness and public concern over identity theft. Zappos, an on-line subsidiary of Amazon, suffered a data breach where hackers obtained over 24 million user names, addresses, emails, passwords, and credit

card information. The company is applauded for quick response sending out emails to customers notifying them of the breach, but admonished for denying access to the company's website for locations outside the United States and closing down customer service phone lines. Zappos has a well-defined risk management plan, having worked with Information Technology security organizations. The company had critical credit card and payment data was housed on a separate server not affected by the breach. Passwords obtained were encrypted and only the four digits of the credit card number used with Zappos fell into unknown hands. "Consumers are more likely to unknowingly give away their sensitive personal information to 'phishing and pharming' thieves who specialize in constructing websites and emails that mirror the brand they are spoofing" (Roman, 2012). Despite the apparent minimal effects of the loss, a class action suit was filed by one individual on behalf of all 24 million customers incurring potentially negative publicity and defense costs. Communications with customers will be critical in the recovery effort to regain consumer confidence and weather the long term effects of the loss.

Encouraging Clear Communications

Integration of technology assists in quantifying risk, however, it is critical to maintain a presence and develop strong relationships across the supply chain to solidify the commitment to mitigating risk. Relationship management will function as a deterrent to extortion or bribery. "In some parts of the world, the payment of bribes is so common that everyday cash transactions are considered routine" (Anderson, 2011).

Development, training, and constant communication with individuals throughout the supply chain will help develop good working relationships, as well as providing opportunities for collaboration. With the nature of threats, especially in volatile regions, changing frequently the employees who interact with others throughout the supply chain will be the first line defense to identify and report potential risk or unusual behavior with a supplier, vendor, customer, or shipper. As a minimum, annual training is critical to help employees handling the supply chain be aware of their surroundings, identify risk, and learn appropriate response. A good communication plan is the cornerstone for protecting a constantly moving, changing supply chain.

Ongoing rivalries between part time service men and women and full time enlisted soldiers have presented problems assessing, managing, and identifying equipment for proactive maintenance, replacement, or repair in the National Guard supply chain. Guardsmen were often instructed incorrectly how to report inventory based on the fear that supporting divisions throughout the Department of Defense are looking for supply information to take their equipment away and give it to a full time unit. This promulgates the problem of obtaining accurate supply information making it very difficult to strategically plan and budget for equipment needs and upgrades. Initiatives have taken place around the country with the implementation of National Guard liaison officers who are the intermediaries working to bridge the gap of communications to overcome this undesirable division. This rivalry was the catalyst that left an opening for corruption from within the military. A full time individual responsible for ordering specialized military grade replacement parts consistently declined supply requests from the National Guard units based on discrepancies in the quantities listed in supply logs. The acquisition specialist, because of his personal bias, did not investigate or ask why the parts were needed to clarify the discrepancies. An investigation uncovered that complaints of part time soldiers looking for solutions to repair and reset equipment, opened an opportunity for individual(s) at a repair depot to commit a heinous act of financial fraud. The significant financial impact throughout the supply chain, filtered throughout the entire National Guard, affected enlisted soldiers, civilians, and private industry across all fifty states. Handouts were provided to National Guard units by the repair depot encouraging guardsmen to send equipment for reset and repair at that location including with an added enticement "no paperwork required and no cost

to your unit". The depot repaired the equipment with substandard, counterfeit, and refurbished parts while the individual(s) charged the National Guard Bureau

direct for the cost of new components. It was alleged that the individual managing the money on behalf of the depot was pocketing the difference of nearly $100,000 per piece of equipment repaired. Once the counterfeit parts were detected, the investigating team spoke to the manufacturer learning they retired the component ending the lifecycle due to the lack of demand. The costs associated with bringing the product back on line, recalling personnel who had been laid off, as well as expediting the supply of raw materials, and costs associated with running a 24 hour 7 day a week production to quickly mitigate the threat illustrates the depth of additional financial losses for individuals, organizations, and the taxpayers. The Department of Justice re-assigned the investigation prepare their case for prosecution, however, mistrust already festered throughout the guard because had they been deployed with the substandard and faulty equipment, they could have suffered catastrophic loss of life. LTC Avery Leider, a National Guard Bureau liaison stated "My team identified the gaps in training for supply chain management throughout the National Guard, therefore we worked with subject matter experts to design a comprehensive training agenda for key personnel from existing on-line training modules." LTC Leider as was pleased that the Department of the Army approved the implementation of a mentor-ship program between full time and part time personnel with on-site visits to assist part time personnel identify proper procedure and detect unusual activities" (2012). The primary focus in the aftermath of corruption in the supply chain is to bridge relationships and trust between full time and part time soldiers.

Benefits of developing clear communication methods with key stakeholders throughout the supply chain will assist in identifying new and emerging risks while solidifying the commitment to protect the supply chain. Ryder Trucking took the lead hosting annual cross border security conferences demonstrating a strong commitment to employees, customers, and vendors to control emerging threats. Ryder's centralized risk management department coordinates annual conferences that bring together government representatives from Homeland

Security, Customs and Border, and law enforcement with key stakeholders throughout the supply chain. The conferences serve to strengthen relationships, facilitate communications and feedback from local management to identify and evaluate emerging risks in their region. "While corporate security has a role of establishing policy and guidelines to minimize confusion across all location, local management is implementing the security strategies, measuring their success, and the first to identify potential gaps" (Anderson, 2011).

When identifying risks and developing procedures to mitigate those risks it is important to send a continuous message throughout the supply chain that sets the expectations for key stakeholders to actively participate in securing the supply chain. Some of the strategies successfully used have been establishing a clear timeline of security activities, holding meetings, developing web based tools to house documents, creating a knowledge library, and facilitate ongoing discussions have been successful developing a conscientious commitment to security on a day to day basis adding a layer of protection to the supply chain. Day to day strategies keeping the lines of communication open should not take the place of physical on-site inspections to ensure that the proper safeguards are being implemented and contractual obligations are being met. It is not unusual for foreign agents to have their own representatives on the docks to ensure control measures are in place to protect the shipment. Developing a clear communication plan that coincides with ongoing training initiatives will encourage and empower employees to keep a watchful eye and properly report suspicious activity.

Discouraging Illegal Activity

Undocumented workers for the most part do not present a threat of terrorism, but provide opportunity to those who would commit an act of terrorism. Illegal immigrants create a demand for the underground production of false documentation and identities that terrorists could take advantage of. Undocumented workers are typically living at a level of poverty that a terrorist could exploit. A cash payment could be offered to the undocumented worker to tamper with the supply chain without them understanding the impact of what they are doing. For example animals intended for human consumption could compromise public health if a vial of chemicals or bio-toxins entered the feed or water supply. "Illegal immigrants across U.S. borders makes it difficult to identify and stop dangerous people and contributes to an infrastructure designed to weaken the integrity of U.S. borders" (Customs and Border Patrol, 2009). By developing relationships with professional organizations and vendors and selecting those with similar values and levels of commitment to properly documenting workers will limit the overall risk of throughout the supply chain by eliminating the demand for false identification, and the potential for worker extortion or corruption.

Post-Loss Communications

In the event of a loss, most organizations are focused on continuing operations and often forget about human assets that may have suffered psychological effects. It is relatively simple to implement recovery strategies

by following processes and procedures that have been identified in the risk management process, but it is more difficult to identify employee's needs in advance. The needs of the employee will vary depending on the type of loss. Acts of terrorism or other man-made losses will have a different impact than a natural disaster.

Positive employee attitudes result in high performance, quality, and productivity with a low absenteeism rate. After September 11, 2001 employees reprioritized their lives focusing more on family. Some employees were afraid to return to live and work in Manhattan, relocating or finding positions in surrounding states. Reade (2009)

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discusses a survey conducted in the months following September 11 reporting employees felt disconnected after the disaster and was looking for a way to become reconnected. The survey also indicated they could not find the connection at work and sought it through family and friends. The effect on personnel hindered companies during the recovery process as a result of increases in leave taking, absenteeism, and job separation. Other employees were angry with supervisors and the organizations as a result of what was perceived as false communications prior to the terrorist attack. Employees commented that their employers had communicated their commitment to their employees, provided security communications, and created a culture that their well-being mattered. After the attacks, employees believed the organizations did not care about their well-being because they failed to communicate changes in security measures, offer assistance, or help them as they struggled to refocus on their work. Employees felt they were no longer trusted or valued during organizational changes which created additional stress, anxiety, and depression.

Consistency and follow through on previous communications is critical to the recovery process. Companies often go to lengths educating employees on company brand and commitment to them before they are hired. Organizations often have elaborate orientation programs to integrate employees into the workforce and quickly transition new staff into a productive routine. In

the aftermath of an event, a break in communication or failure to demonstrate the commitment creates animosity towards the organization. Companies rely of the experience and expertise of staff and partners to perform the work required to resume operational capabilities. As part of the risk management and recovery plan in the supply chain, it is just as critical to demonstrate that the organization values the well-being of their employees. A company should consider flexibility on treating the employees, allowing them to reconnect with their jobs after an event. By communicating and implementing a basic framework allowing for employee assistance is a critical step in the organization's recovery process. Some successful programs have included establishing donation systems, offering counseling, or working with partners to assist those who may have suffered catastrophic loss. The benefits from consistent communications and implementation of emotional well-being programs have developed employee and business partner loyalty which hastens the recovery and encourages commitment in the prevention of incidents.

In the aftermath of the shooting at Fort Hood, soldiers felt betrayed by one of their own and feeling of resentment and mistrust started to fester. It affected many that saw battle within a secure military installation as they watched armed soldiers running down the streets, snipers taking positions, and SWAT teams taking position across the installation, including armed guards at the daycare center. Civilian families and workers not directly involved suffered a psychological stress hearing a loudspeaker every ten minutes instructing people to go inside and lock the doors. Within hours, the lockdown was lifted followed by a day of mourning allowing the organization and community to come together and reconnect. Operations fully resumed the following business day. Ongoing consideration and support was provided to victims, their families, and the affected community at Fort Hood. Continued communications not only at Fort Hood, but across all branches of service, included active shooter designed to instruct civilian employees on what to do in the event of a crisis as well as empowering them with confidence working to eliminate fears. Additional training was provided to identify potential threats with clear instructions on

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what constitutes suspicious behavior, and how to report a person confidentially for further investigation. By providing the training, it eliminated misconceptions about terrorist activity and allowed staff to understand differences from radical behavior that should be of concern. Similar training was conducted for suicide watch and other threats to maintain cohesiveness and develop an expectation that civilians and soldiers alike should look out after each other.

The psychological services, assistance, and training provided to the families, soldiers, and employees directly and indirectly affected by the shooting communicated a consistent message of caring which minimized negative attitudes and helping others cope with natural feelings of betrayal. The consistent communications in response to the event mitigated new risks of discrimination and suspicious of others in the military preserving the unified culture.

Conclusion

The supply chain is a very complex web of tangible and intangible goods and services that are inter-dependent upon each other. It is impossible to independently close the countless gaps throughout the supply chain that place consumers, businesses, and suppliers at risk. It is impossible for one organization to be in a position to identify, mitigate, and respond to every possible threat scenario that affects the supply chain making it critical to develop cooperative relationships to secure operations.

The impacts of a loss can be devastating and long reaching with limitless possibility not only threatening economic stability, but of catastrophic loss of life. Relationship management will help proactively identify risks, develop strategies to eliminate the threat or reduce its impact, as well as managing the recovery process by identifying clear communication channels throughout the supply chain.

Consistent communications throughout the entire supply chain is critical. Communications begin with the establishment of the relationship to train and encourage stakeholders to identify and report risks. Throughout the lifetime of the relationship consistent communication is used to encourage collaboration in developing strategic plans to mitigate threats. During recovery and responding to an event, the consistent communications need to be demonstrated by actions while resuming business continuity and encouraging all stakeholders to unify and recommit to the prevention and mitigation of future risks.

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Jennifer Bilodeau, a Reverse Logistics specialist, formerly supported the Department of the Defense in day to day management of both inbound (return) and outbound distribution of goods throughout the command. She was recognized for exemplary performance throughout the base relocation effort working with internal/external stakeholders managing multiple projects assessing tangible goods for movement to new facilities, acquiring replacement items, as well as recapturing value from left behind products. In this role she oversaw reverse logistics operations including repair and warrantees, secondary markets, deconstruction and re-utilization of parts, as well as final disposition instructions.

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