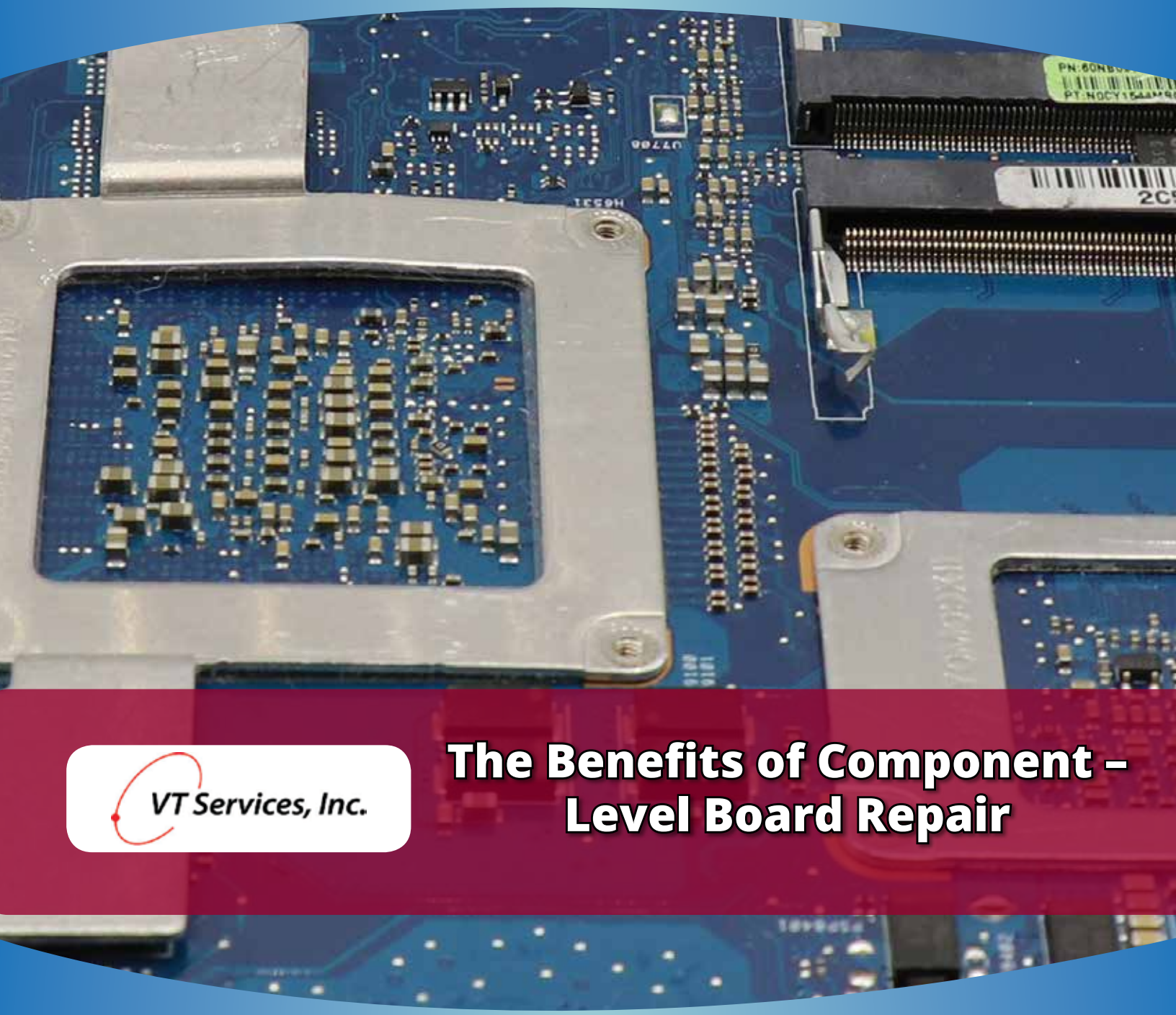
REVERSE LOGISTICS magazine®

Serving Manufacturers, Retailers, and Service Solutions Providers



VT Services, Inc.

The Benefits of Component – Level Board Repair

Edition 103

OFFICIAL MAGAZINE OF THE REVERSE LOGISTICS ASSOCIATION®

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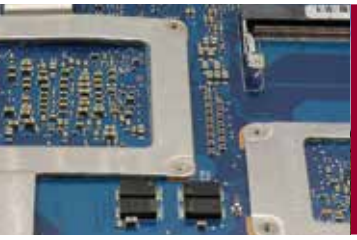

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COVER STORY
The Benefits of Component –Level Board Repair

By Jane Washburne, Director of Marketing, VT Services, Inc

The life cycle of electronic and digital devices seems to be getting shorter and shorter. The more that people carry their laptops, cell phones, and tablets around, the more these devices are dropped, exposed to the sun, sat on, damaged by water or other liquids, and abused in other absurd ways.

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ARTICLE Driving Efforts to Repair vs. Replace

By Tom Sutlive, Director of Service Operations, Encompass

To repair or replace is one of the greatest quandaries regularly affecting the reverse logistics industry. Consumers are inundated with various formulas and advice on whether to repair the refrigerator that's not cooling or the dryer that's not heating – or upgrade to the latest model.

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ARTICLE Stopping the Lemon Effect: How To Save The Refurbished Industry and The Circular Economy

By Vianney Vaute / CCO Back Market

The refurbished electronics market seems to be doing great, at least if we go by the numbers of the refurbished smartphone market that have been bandied around so much, with the global refurbished smartphone market (13% y/y growth) outpacing the new smartphone market (3% y/y growth) in 2017. More recent studies show that 2018 was the first time that the global smartphone market has witnessed a decline for an entire year.

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ARTICLE The Vital Role of Reverse Logistics in the March Towards Servitization

By Charles Rathmann, Global Senior Marketing Content Strategist, IFS

We are witnessing an inexorable change in product-centric business models. Gone are the days when a product could be marketed with little to no thought as to what happens after the initial sale. Global commerce has resulted in a world where products are commoditized, and downward price pressure limits revenue from product sales. The aftermarket is where the profits are, and this is driving a move towards servitization.

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ARTICLE Time for Free Reverse Logistics Items and Volunteer Clean Up

By Dr. William Oliver Hedgepeth, Faculty Member, Transportation and Logistics Management, American Public University

Students at Virginia Commonwealth University (VCU) in Richmond can pick up free classroom materials and furnishings for their dorm rooms when they arrive on campus at the start of the fall 2019 semester. This generosity is part of the university's sustainability program. The free items include small refrigerators, clothing irons, coffee pots, textbooks, trash cans, lamps, even bicycles, nearly all the items needed to furnish a small apartment.

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ARTICLE The Future of Retailing A Logistics Perspective

By Tony Sciarrotta, Executive Director, RLA

They say that the retail experience is undergoing a radical technology shift. Ostensibly, this will make many business processes obsolete. Such disruptions have occurred before—when catalog sales were introduced; when big-box stores displaced mom-and-pop stores, business models changed. Somehow, the retail experience survives. Squeezing the fruit, trying on the clothes, will never be totally replaced by on-line shopping and drones.

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View from Academia

COLUMN **Be Aware of Returns when Managing Mass Customization Products!**
By Mark Ferguson (U of South Carolina), Michael Galbreth (U of Tennessee), Guangzhi Shang (Florida State U)
This recurring series provides plain-English summaries of leading academic research in the area of consumer returns. It is co-produced by Mark Ferguson (Univ. of South Carolina), Michael Galbreth (Univ. of Tennessee), and Guangzhi Shang (Florida State Univ.).

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Message from the Editor

PART 3 OF MY RETURNS EXPERIENCES:

I recently bought 2 items online from a major (brick and mortar and ecommerce) retailer. When the items arrived, I was surprised to see they were sent from a third party. After opening the package and trying them out, I decided the items were not keepers, so I returned them to the brick and mortar store nearby. Once I arrived, I found out I couldn't return them to the store, and had to return them using the enclosed shipping label.

Once home, I checked out the included invoice, and saw on that return label small writing saying there would be a charge for returning the items that would be deducted from my refund (due to shipping, etc). I was a bit annoyed. When I ordered the items, I was under the impression I was buying from this big box retailer, not a 3PSP, and would be able to return it back to the store - but now with the items in hand, I find out that was NOT the case. Nowhere on my confirmation email did it ever say the items were coming from a third party, or that there are different policies for returning.

So, I called Customer Service to inquire about the miscommunication during my purchase. After being transferred a few times, the last person I spoke to told me that I would be refunded the complete amount for both items (from this major retailer), and to just dispose or donate the items. I honestly couldn't believe it. I guess I got the response I wanted, BUT, how can this be a reverse logistics best practice? I would think it would be more cost efficient to just return the items at no cost to me, and be able to resell them, then to take a total loss – but perhaps the cost of shipping, warehousing, and making the item resalable might be more costly than the items. Definitely an opportunity for a Solution Provider to make it a better practice.

Felecia Przybyla
RL Magazine Editor
Editor@rla.org

OUR MISSION

The Reverse Logistics Association is a members' driven, global trade association for the returns and reverse industry, offering information, research, solutions and services for Manufacturers, Branded, and Retail companies from Third Party Providers. Our goals are to educate and inform Reverse Logistics professionals around the world, and be the voice of the reverse industry.

Reverse Logistics Association
Industry Focus Committees

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 and 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

This is a Benefit offered to all RLA Members

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What's Up RLA

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Board of Advisors

Jack Allen – Cisco is the worldwide leader in IT and networking, with $50B in revenues annually. Cisco helps companies of all sizes transform how people connect, communicate, and collaborate. As Sr. Director, Global Logistics, Supply Chain Operations, Jack manages logistics activities that support all of Cisco's product revenue and returns. This includes forward and reverse logistics, export operations, transportation, warehousing, packaging engineering, customer logistics and logistics innovation practices. Jack's team manages an end-to-end ecosystem of global partners consisting of the best and most innovative logistics corporations in the world.

Bob Arvin – Walmart, As Divisional Vice President, Bob is a Senior Level Supply Chain Executive with 35 years of experience in forward & reverse logistics, project management, engineering, transportation, Internet fulfillment, and Distribution Center operations. Bob is currently responsible for the Reverse Logistics Network at Walmart Stores, including National RTV & Secondary Market programs for Walmart Stores, Walmart.com, SAM'S Clubs, & SAMS.com. His past responsibilities at Walmart includes the Apparel Distribution Network - replenishment of apparel, shoes, jewelry & GNFR to all Walmart Stores & SAM'S Clubs in the US, plus fulfillment of on-line apparel sales for Walmart.com. In addition, Bob also has past responsibility for regional General Merchandise & Grocery Distribution Center operations.

Trish Boehm – The Home Depot, Trish joined The Home Depot team in 2010 as the General Manager of their first Reverse Logistics Center. She has held several roles of increasing responsibility in the Reverse space including Regional Asset Protection Manager and Regional Operations Manager. Trish is currently the Director of Operations and is responsible for engineering, transportation, systems, building services and labor planning for the Reverse Logistics Network.

Tim Brown – Georgia Tech Supply Chain & Logistics Institute, Tim Brown is Managing Director of the Supply Chain; Logistics Institute, an Academic Program Director in Georgia Tech Professional Education, and an instructor in the Stewart School of Industrial and Systems Engineering at Georgia Tech. Mr. Brown has worked in the reverse logistics area for over twenty years; consulting with companies such as Philips Electronics, Apple, and IBM in the development of their reverse logistics and service operations strategies, infrastructure, and procedures. Mr. Brown was selected as a "Professional to Know" by Supply and Demand Chain Executive.

Chuck Johnston – goTRG, Chuck is COO at goTRG, a global leader in the implementation and execution of omnichannel and supply chain solutions. He was formerly the Director of Reverse Logistics for The Home Depot, responsible for all return and repair operations. Prior to that he oversaw the Reverse Logistics operations for Wal-Mart Stores Inc. Chuck has been involved in the Reverse Logistics industry for over 20 years and is considered the foremost expert in the field. He is a sought after speaker and considered one of the most innovative thinkers in the industry. In addition to his experience in the reverse space, he has led numerous Specialty Distribution Operations in his 23 years with Wal-Mart. While at Wal-Mart, Chuck was responsible for the development of a profitable, "best in class" Reverse Logistics organization that is still the benchmark for all other retailers.

Bernard Kiernan– Intel, Bernard Kiernan has been with Intel Corporation for over 20 years in a variety of roles from Quality Management, Services Management, Project and Program Management. Most of this time has been in the Reverse Logistics organization in the design, deployment and management of Reverse Logistics solutions across Intel's broad spectrum of products. Senior Program Manager within Intel Corporation's Global Reverse Logistics (GRL) group with responsibilities for identifying the current and future Reverse Logistics requirements of Intel Business Units and the development of Business Solutions which delight the customer and deliver value add Reverse Logistics services.

Board of Advisors

Thomas Maher – Dell, Tom Maher joined Dell in 1997 and is the Senior Vice President 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.

Steven Nickel – Google, Steven currently leads Google's global reverse logistics operations and value added support services development for all of its consumer hardware products. He's been with Google for nearly five years, but brings 20+ years of experience in consumer technology--building amazing teams, growing profitable businesses, and improving customer experiences.

Daniel O'Neill – Client Solutions Daniel O'Neill leads Liquidity Services' Client Solutions team within the Retail Supply Chain Group. He is directly responsible for all current key client relationships, end to end inventory acquisition and disposition decisions, and program pricing and profitability. Dan brings more than five years of experience at Liquidity Services and over 17 years of professional experience within the corporate finance, strategic procurement consulting, and global supply chain industry.Previous employers include A.T. Kearney, a global management consulting firm, and A.P. Moller-Maersk, the world\'s largest shipping and logistics company. Dan holds an M.B.A. from the McDonough School of Business at Georgetown University and a B.S. in Finance from Rutgers University.

Julie Ryan – HP, Inc. Julie Ryan joined HP (Compaq) in 1986 with over 22 years of experience in various reverse logistics capacities for US, Canada and Latin America. Julie currently leads the Americas Returns & Remarketing organization responsible for end to end reverse logistics which includes channel return approvals, physical claims and disputes, returns receiving, credit issuance, disposition management, remanufacturing, remarketing as well as planning, forecasting and reporting.

Tevon Taylor – FedEX An 18-year FedEx veteran, Tevon brings significant experience to the RLA, including nearly six years with Information Technology and Solutions at FedEx Services and three years with the Worldwide Sales team. He joined FedEx Supply Chain in 2014 and has successfully managing numerous large strategic accounts and developing long-term customer relationships.

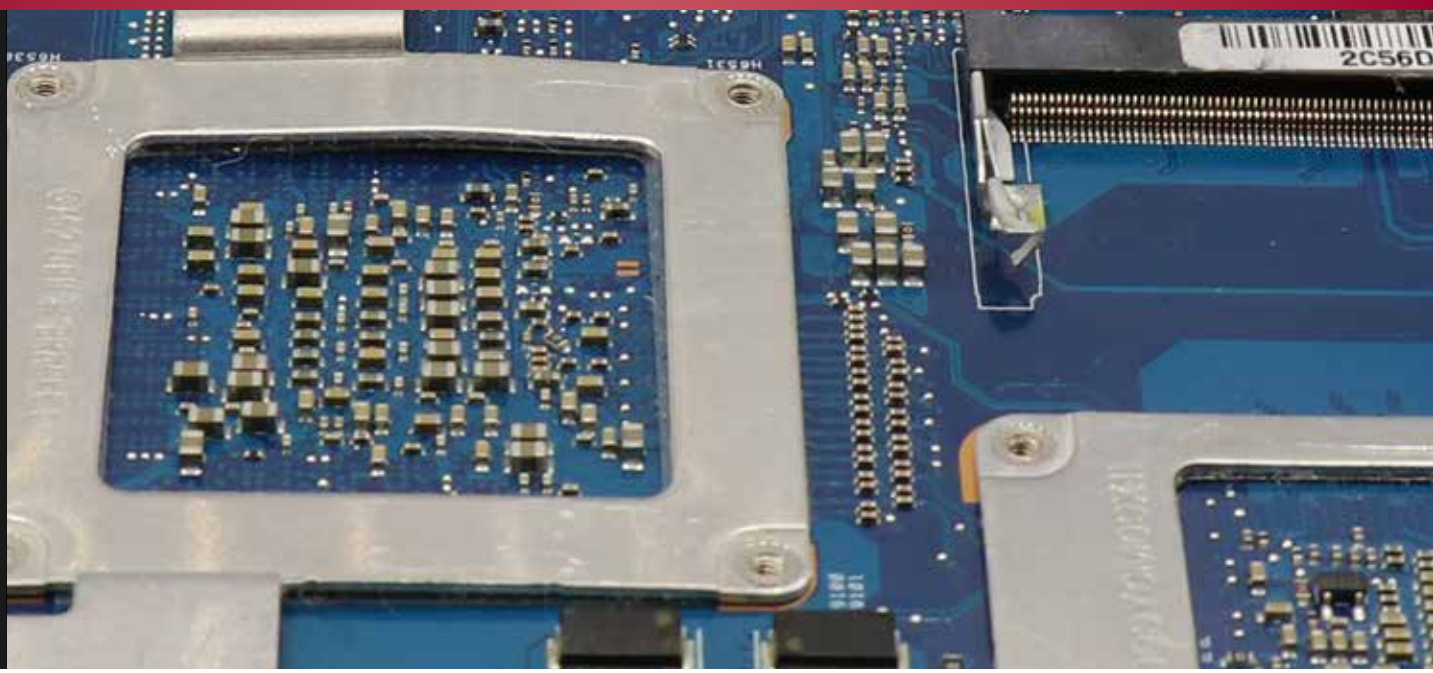
Tony Sciarrotta – Reverse Logistics Association, Executive Director, In 2016, Tony took over and became the Executive Director of the RLA after 12 years of active involvement on the Advisory Board and Committees. In over 35 years in the consumer products industry, Tony held various positions including 15 years in returns management at Philips where he developed new reverse logistics strategies. He worked with retail partners and industry groups to implement returns initiatives still in use. Tony has been an evangelist for improving the customer experience to reduce returns and their associated costs. Today, Tony is considered a subject matter expert in reverse logistics, and speaks for the industry at conferences all over the world.

REVERSE LOGISTICS ASSOCIATION®

The Benefits of Component – Level Board Repair

By Jane Washburne, Director of Marketing, VT Services, Inc. – RLA Bronze Member

ARTICLE



The life cycle of electronic and digital devices seems to be getting shorter and shorter. The more that people carry their laptops, cell phones, and tablets around, the more these devices are dropped, exposed to the sun, sat on, damaged by water or other liquids, and abused in other absurd ways. We have many unbelievable stories we can tell! Many school IT directors, operation managers, and even some families have storage closets, cabinets, and nooks and crannies full of equipment that is broken and unusable while their budgets and resources are limited for replacement. The question is what's to be done with this equipment?

Component-level repair is a solution that everybody needs and yet few people know exist or have become comfortable enough to give it a try. On its very basic level, component level repair requires technicians with unique skills and equipment to find the problem the device is having and fix it. This eliminates the need to replace parts that are not broken or discard the whole device and purchase brand new. Logic board components consist of a group of IC's (integrated circuits) coming together to create one logic board layout. Support components for each IC consist of transistors, capacitors, resistors, mosfets, step-up and step-down power control, and I/O ports (USB, HDMI, D-Sub, etc).

When talking with Sandy Zimmerman, President of VT Services, it is very clear that her and her team have such an enthusiasm for component-level board repair and the value it has brought to many of their K-12 clients. Over the last few years, more schools are going 1:1 ratio with Chromebooks with their students. The cost of replacement boards for these units would typically exceed the value of the unit; therefore, making the defective Chromebooks practically disposable. With the cost-effective component-level board repair, it has made it a whole new ball game! Schools are able to keep devices in fleet longer and it is making a huge impact on their budget and bottom line.

Whether you outsource all device repairs or self-insure your devices, we have a solution for you.

VT Services is a computer hardware solution provider with the unique skill to inexpensively repair damaged and defective main boards for all types of Windows, Apple and Chromebook devices.

VT Services has been providing computer hardware solutions for over 25 years with a specialty in customizing programs that fit into your current process.

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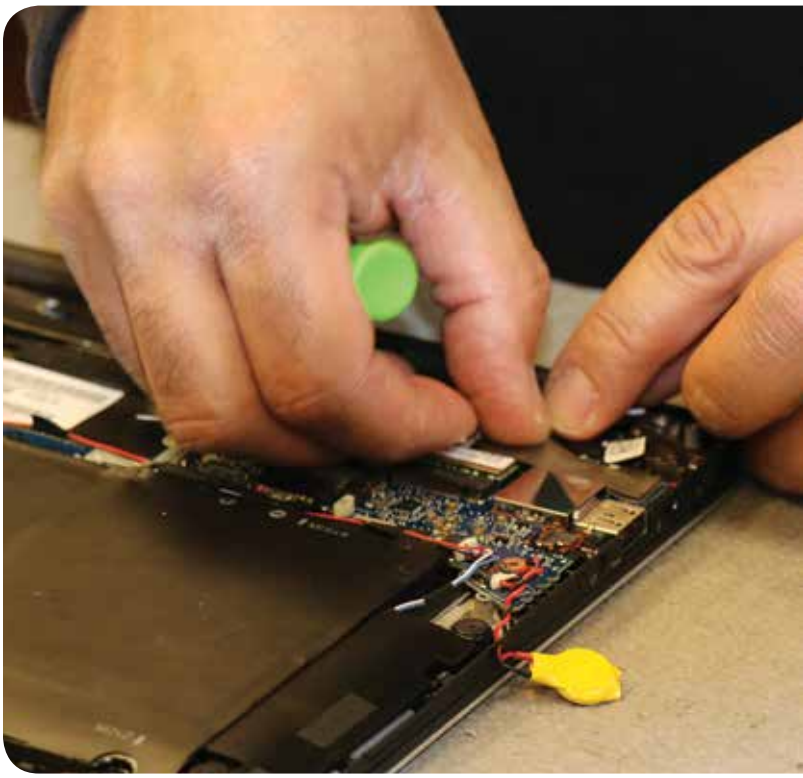
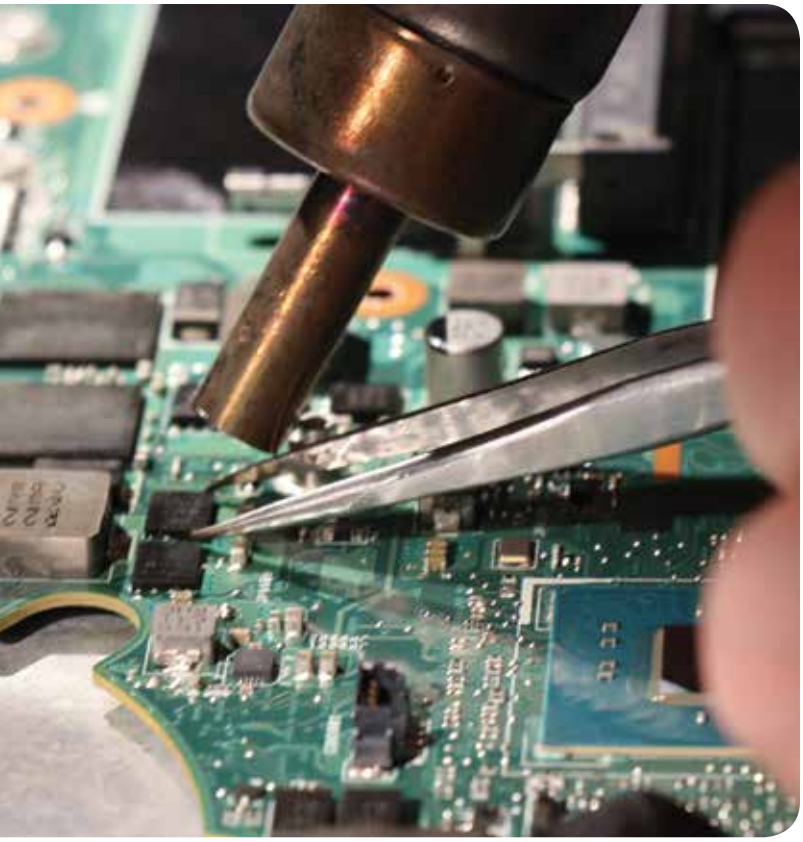
Component-level hardware technicians keep the cost of repair on a wide range of educational, enterprise, and consumer devices to a minimum, while also keeping the environmental impact at a considerably lower rate. Component-level troubleshooting, diagnosing, and repairing are key elements to what component-level repair is all about. A good technician is skilled in soldering various types of IC components safely, quickly, and effectively. Utilizing proper tools, and understanding the communication between IC components, and their support components as well as how power travels, is converted, and is carefully controlled; this gives the technician the ability to make sure the device is repaired properly. It will also allow the logic board to function as the manufacturer of the device intended, sometimes even pinpointing manufacturer flaws along the way. Joe Marchesky, Director of Research and Development at VT Services, indicates that with the capability of replacing THT (Through Hole Technology), SMT (Surface Mount Technology), or BGA (Ball Grid Array), the technician should be able to get the device back up and running as fast as possible, and with a high level of quality and integrity. Our years of experience allows us to make these assessments with confidence and accuracy.

In addition to the previously mentioned benefits, most component-level repair companies offer a 90 day warranty on the repair which exceeds most part vendors' warranties by 60 days. This extensive warranty period gives our customers peace of mind.



When comparing the cost of component-level repair there are more things to consider than just the monetary aspect. When the device is not working, that is considered downtime and downtime is money lost. If that device ends up in the local landfill, that is environmental cost. By using component-level repair, all three versions of cost are significantly cheaper compared to the cost of replacing an entire logic board. Right now, the cost of a specific major Chromebook manufacturer logic board, if purchased directly from the manufacturer, is about $298.00. If it also happens to be on backorder, that adds another cost - the cost of downtime. When VT Services fixes the same logic board the price ranges between $40 and $70. That is less than one third the price of the new board and it keeps the old board in use longer and out of the landfill. And, because the repair takes place in house, turnaround time is less than 24 hours instead of waiting on a back ordered part that could take weeks. That is the ultimate goal of component-level repair.

Service centers, like VT Services, that offer component-level repair can extend the life of a device by several years. For example, the computers that are made for gaming have an end of life at about three years. Around that time, some manufacturers will stop production of the parts and if the unit goes down the consumer can try to find a part online somewhere or they would just have to buy a new one. By taking the computer to a component-level repair service center, the consumer could get the part fixed and be able to continue using the computer.



E-Waste, also called electronic waste, is the name for electronic products that have reached their end of life cycle. The impact that these devices have on the environment goes much further than just piling up in the landfills. Some of these devices contain toxic materials such as barium, chromium, lead, nickel, and zinc which can get into the ground, water, and air and cause health issues to people who come into contact with it. Component-level repair helps to push back that end of life date and keep the electronic devices in circulation and out of landfills. It truly is summed up with the Recycle, Repair, Re-Use triangle. Jodi Ortiz, Project Development Manager at VT Services, has attended many conferences over the last couple of years and in speaking with the many recycling companies, has learned that the recycling companies are now investing in component-level repair as well and reselling entire devices instead of breaking them down to the recycling components and disposing of the non-recyclable items. It has allowed the recycling companies a whole new outlet to increase revenue and be more "Green" at the same time. It truly is a win – win!

There is less down time sending in a device for repair versus having to wait for a replacement part from the manufacturer and that is if the replacement part is even still available. Many times the original manufacturers will stop production on boards to make room for newer models coming out. It becomes difficult to find the right pieces and component-level repair becomes the best option to keep the device running. Pat Robert, Director of Business Development at VT Services, has indicated over the past couple of years certain manufacturers have jumped on board with component-level board repair realizing the many benefits. Our commitment to constantly keeping up with the technological changes allows us to stay ahead of the trends in the market.

Logic boards are manufactured by machines which sometimes do create a flawed product. When this happens, the whole system can go down. Because of the troubleshooting process that component-level repair technicians use, those flaws can be found and corrected. Reminiscing with the Service Manager, Dan Swartz at VT Services, he recalls a good example of this was experienced back in 2012 with a particular model gaming unit. These units were having issues of overheating and it seemed to come from broken contacts. The units that came to component-level repair companies were quickly fixed and returned to their owners. Others tried, without much success to fix the problem on their own using techniques found on the internet.

Many times component level repair service centers are risk free. They offer a no charge policy for those products that cannot be fixed. Often they will also provide recycling services to make sure that the parts of an unusable device are disposed of properly and that any parts that can be reused will be salvaged and used.

There are many things that can go wrong with electronic and digital devices, from a transistor to any number of ports. Sometimes people just want to throw their hands in the air and give up, throw it all away or stick it in a closet and buy something new that hopefully will work better. Sometimes they even try to make do with a cracked screen, broken keyboard or only half of the available ports working. Component-level repair centers can make a difference on so many different levels - fast turnaround times, cost savings, and environmental savings. The solution is here, finally!

Jane Washburne is a long time photographer with a degree in computer science. She has a passion for technology. She spends her time developing new techniques in digital communications. When she's not working, she enjoys her lake, entertaining and cooking for friends and family and spoiling her 4-year-old golden doodle, Sammie.Re

Driving Efforts to Repair vs. Replace

By Tom Sutlive, Director of Service Operations, Encompass – RLA Bronze Member

ARTICLE

To repair or replace is one of the greatest quandaries regularly affecting the reverse logistics industry. Consumers are inundated with various formulas and advice on whether to repair the refrigerator that's not cooling or the dryer that's not heating – or upgrade to the latest model.

When the economy is flourishing, consumers tend to lean toward replacement. Their existing model suddenly seems obsolete when a flashier version hits the market, especially if the current unit is not functioning properly.

The most common rule of thumb is to opt for repair if the cost is less than 50% of the new purchase price. Underwriters follow a similar rule when determining whether to replace or repair a product under warranty. However, while financial considerations are certainly high priority, some businesses and consumers also place value on eco-friendly solutions to minimize the harmful impact of e-waste.

SourceToday reports that more than 40 million tons of e-waste are annually generated worldwide. By the year 2050, global e-waste production could reach 120 million tons annually if current trends continue. According to The World Health Organization (WHO), e-waste emits numerous toxic materials such as lead, cadmium, chromium, brominated flame retardants and polychlorinated biphenyls (PCBs). Humans get exposure to these toxins by inhaling fumes, as well as from accumulation of chemicals in soil, water and food.

RIGHT TO REPAIR

The service repair industry is currently benefiting from "right to repair" efforts at both the state and federal levels. Groups pushing to maximize repair opportunities claim some manufacturers make it nearly impossible to fix their goods so they can sell new products instead.

Proposed legislation typically requires manufacturers to provide service manuals and diagnostic software, as well as make replacement parts available to increase repair capabilities for DIY consumers and professional service techs alike. New laws are intended to both prevent e-waste and increase competition among repair providers.

INDUSTRY DEVELOPMENTS

To meet demand, the repair industry continues to improve with new technology and operational processes. Some repair depots have employed advanced test equipment that passively tests circuit boards to determine out-of-tolerance conditions. This enables more detailed troubleshooting and helps make repairs more viable since costly, often hard-to-find test fixtures aren't needed.

With software enhancements delivering real-time tracking throughout the repair cycle, automated status updates can be provided to keep customers/end users

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informed – minimizing time-consuming calls and update requests.

REPAIR CHALLENGES AND SOLUTIONS

Repair providers are not without their own unique challenges. They are constantly under pressure to reduce turn times and increase yield within constraints of shipping time and expense. They often have to compete against depots offering cheap flat rate pricing regardless of labor and part costs.

Additionally, not all repairs are equal. While some only require fast, less expensive "fluff and buff" service, others are much more complex, requiring additional time, effort and pricey components.

To combat these common issues, many depots have found creative ways to keep costs down to enable more economical repairs. Using parts harvested from non-repairable products is one way to offset costs of high-dollar components like circuit boards. Repairing such boards is also critical to maintaining a strong parts supply chain to increase repairs.

To simplify shipping to depot facilities, service providers are often partnering with freight carriers to offer convenient product drop off and pick up locations. Continually reviewing and negotiating favorable freight rates is another important way to control costs and help make repairs more financially feasible.

ASSESSING REPAIR PARTNERS

There are several key factors to consider when selecting a repair partner. First, prior to engagement, it's critical to outline specific services required, performance expectations and business rules. One of the most important aspects of this process includes determining the economical price point for repair, plus product disposition options when the maximum is exceeded.

Establishing metrics for repair yield, cost, turnaround time, quality and other indicators are necessary to adequately evaluate performance. Depots should be able to document each step of the repair process for accountability and then deliver extensive reporting to gauge performance. By measuring all facets of the repair operation, depots should be striving to continually improve and meet or exceed service level expectations.

POSITION FOR SUCCESS

With both strong financial and environmental cases to be made for repair, momentum is growing on the side of repair providers. Those leveraging new technology, highly-efficient practices and strategic pricing will be best positioned to take advantage of right to repair laws and succeed against competitors.

Tom Sutlive was appointed Director of Service Operations for Encompass Service Solutions in 2012. Previously, he served as Senior Vice President of Cyber-Test, which was acquired by Encompass in 2005, and was responsible for the overall service structure and establishment of purchasing policies and procedures. Since joining Cyber-Test in 1995, Tom held a variety of management positions including Director of Operations and Purchasing Manager.

Prior to Cyber-Test, Tom was Lead Electric Technician with Sprague Electric, where he handled the operational readiness of specialized precision manufacturing equipment. Tom previously held the position of Systems Analyst with DynCorp, a defense contractor, where he was responsible for generating failure analyses for naval missile tracking systems. Tom also served six years with the United States Navy.

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Stopping the Lemon Effect: How To Save The Refurbished Industry and The Circular Economy

By Vianney Vaute / CCO Back Market – RLA Bronze Member

ARTICLE

The refurbished electronics market seems to be doing great, at least if we go by the numbers of the refurbished smartphone market that have been bandied around so much, with the global refurbished smartphone market (13% y/y growth) outpacing the new smartphone market (3% y/y growth) in 2017. More recent studies show that 2018 was the first time that the global smartphone market has witnessed a decline for an entire year. Some would like to attribute that decline in part to the refurbished/pre-owned smartphone market's growth.

There is also, of course, the fact that a recent category of higher quality devices that are more dust and water-resistant than ever before means that people can hold on to their devices for longer and then resell their phones for considerable value. A person that sells their smartphone within a year of purchase, for example, can expect to recoup 60–70% of the original cost when selling second-hand. These are all cause for celebration for the Fair Tech movement. With recycling efforts outpaced by the tremendous rate of electronics consumption, extending the lives of devices by holding on to our electronics for longer and supporting a circular economy model around them is a crucial element of fighting the e-waste crisis that we currently face as a nation and worldwide.

That said, it is far from time to bust out the champagne glasses. While sales are going well so far, Nobel-prize winning economist George Akerlof describes issues in his paper, "The Market for Lemons: Quality Uncertainty and the Market Mechanism," that already plague the refurbish/reuse aspect of the circular economy model in the electronics industry.

THE LEMON EFFECT

A lemon, for those of you who are too young to remember, refers to a car that is found to be defective only after it has already been paid for. Before the age of CarMax and the Kelley Blue Book, buying a used car was a huge bet. There was a reason for that according to Akerlof: where there is an asymmetry of information — in plain English, a lack of transparency about quality from the sellers to the buyers — there is an incentive for sellers to offer lower quality goods while presenting them to be of higher quality. This dynamic is already at play even in the "certified refurbished" market, where unscrupulous sellers that are looking to make quick and easy sales are more than happy to get paid higher prices than what their products are actually worth. Some folks even label products refurbished that have not been properly inspected or repaired.

It's no surprise that in an in-house poll done by refurbished electronics marketplace, Back Market, of first time refurbished product buyers, 49.6% (a total of 453 respondents out of 917) said that they had not previously purchased refurbished devices because they didn't feel sure about the quality of refurbished goods. "The Market for Lemons" paper states that in the long

run, as buyers are disappointed with their lemons, new buyers begin to factor in the risk of purchasing a lemon in their decision-making. This drives prices down and also drives higher quality goods out of the market, essentially creating a market of junk and potentially causing it to collapse. In that case, we can kiss the circular economy for electronics goodbye.

MAKING PEACHES OUT OF LEMONS

If the refurbished industry is to be saved, it's going to need a big makeover — and not just a superficial one. While Akerlof suggested government intervention (which actually gave birth to the Magnusson-Moss Warranty Act) to help prevent the negative effects of quality uncertainty, some might say that it was actually CarMax that disrupted and turned around the image of the used car industry to make it what it is today. CarMax's model, with detailed test inspections, a warranty and painless buying process, was selling five times more cars than the average new car dealer and 30 times more than the average used car dealer in 1995 — a mere two years after its first store opened. Soon after, competitors of various models began to emerge as the used car market became a more lucrative one. By 2012, used car dealers were selling at a rate comparable to new car sales (in that year, they sold $377 billion in used cars vs. the $316 billion in new car sales).

The refurbished industry is in exactly the same position as the used car market once was and is ripe for someone to take a leadership role. It is only once someone takes ownership of the refurbished device category — putting better standards in place and creating a better buying experience — that we can say that the refurbished market — and the circular economy model for electronic devices — can truly be sustained.

This is precisely the role that Back Market wants to occupy. Our goal is to make buying refurbished devices and appliances a painless and transparent process where a buyer can say with confidence that they are getting exactly what they pay for. While we haven't quite succeeded yet, working closely with (and even helping to develop) top-notch refurbishers, we believe that we are currently in position to make a real impact — not just on the refurbished market but on the planet too. Having already saved 622 tons of e-waste to date, we've already gotten started.

Originally published March of 2019 at: https://medium.com/@BackMarket/stopping-the-lemon-effect-how-to-save-the-refurbished-industry-and-the-circular-economy-c14a866875bd

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REVERSE LOGISTICS ASSOCIATION®

The Vital Role of Reverse Logistics in the March towards Servitization

By Charles Rathmann, Global Senior Marketing Content Strategist, IFS

ARTICLE

AN ANALYSIS OF CURRENT ADOPTION LEVELS OF REVERSE LOGISTICS SOFTWARE IN THE NORTH AMERICAN MARKET

Thanks to an increased emphasis on aftermarket service revenue and end-of-life management, reverse logistics is becoming a more central part of the business model used by North American manufacturers, contractors and product-centric companies. But are companies making the investment in software to streamline the reverse logistics process so that it can be a profit center rather than a cost center? Charles Rathmann, Global Senior Marketing Content Strategist at IFS, offers a review of current primary research into current adoption levels of field service software across manufacturing, construction and other industries that support equipment and assets in the field.

We are witnessing an inexorable change in product-centric business models. Gone are the days when a product could be marketed with little to no thought as to what happens after the initial sale. Global commerce has resulted in a world where products are commoditized, and downward price pressure limits revenue from product sales. The aftermarket is where the profits are, and this is driving a move towards servitization.

TRENDING TOWARDS SERVITIZATION

The move to servitization is a long time coming, given what has been happening in recent years with revenue from new product sales. According to a 2013 IDC Manufacturing Insights survey, just 12 percent of capital equipment manufacturers expected a substantial increase in equipment sales revenue over the next three years. This makes the aftermarket service space a prime target for the companies wanting to identify new profit centers.

Aftermarket service may encompass several different business processes from warranty management, contract management, field service and subcontractor functionality to streamline bid letting, bid acceptance and work order management for third parties—and of course reverse logistics.

SERVITIZATION COMPLICATES THE REVERSE LOGISTICS CHALLENGE

Reverse logistics is a particular challenge for companies pursuing servitization because there is a high degree of diversity in terms of how different parts need to be treated. Software must formalize a value chain for everything from inventory cores that are refurbished, to parts that are returned as defective or for break-fix repair. Even parts returned for disposal might be traced due to regulations on the end-of-life treatment of electronics.

Customer-specific requirements can affect ownership of the part as it enters the reverse logistics supply chain. That means software must help a service organization track and manage the extent to which repair work on the

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part may be billable or included in an existing contract. Returning inventory handled by subcontractors must also be tracked as part of the reverse logistics supply chain.

INDUSTRIES WHERE REVERSE LOGISTICS IS KEY - COMPLIANCE A FACTOR FOR ADOPTION

According to recent research conducted by IFS, adoption rates of reverse logistics software to manage these complexities vary by industry. The early 2018 study reveals that these adoption rates break down along predictable lines, with perhaps a few surprises.

Thirty percent of food and beverage industries had adopted reverse logistics software. In this space, the returns process is mission critical because it involves applying credit to customer accounts and updating the product disposition. Usually, these products are removed from distribution because they are damaged, discontinued, expired or recalled. In some cases, they may want to record root cause of returns and collect other actionable intelligence.

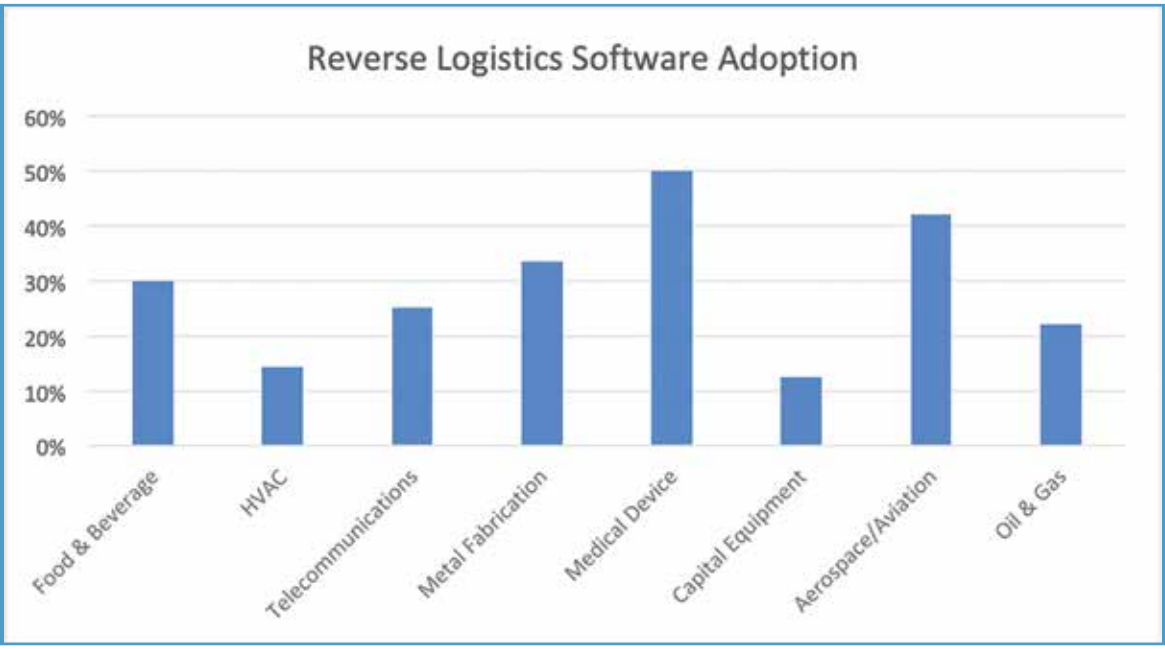
Discrete manufacturing disciplines often operate a depot repair environment in addition to the returns process. Inventory may be returned to the customer, be entered back into inventory, sold as reconditioned or be dispositioned in a number of other ways. It is no surprise that manufacturers of high-value, mission-critical systems in industries like medical device and aviation/aerospace products were most likely to have specific reverse logistics software systems in place. For each of these industries, traceability of the inventory is required for safety and regulatory purposes, adding a layer of complexity to the reverse logistics process.

Companies providing aftermarket support on aviation and aerospace assets will face various regulations depending on whether they are working on commercial or military aircraft. If they are removing life-limited parts from the aircraft, they must document the current life status of the part. They also must maintain records of any repairs—including those performed in a depot environment—for a year in the case of basic repairs and for the life of the aircraft in the case of major alterations. The takeaway here is that companies in regulated industries must be prepared for serial traceability and this is one more requirement that reverse logistics software must satisfy.

POOR SOFTWARE GETTING IN THE WAY OF BUSINESS?

Reverse logistics is not just a factor for manufacturers. Contractors, too, are pursuing more aftermarket revenue and often have warranty and service activities that involve a reverse logistics supply chain. Almost 80 percent of contractors in a 2018 IFS study of HVAC, mechanical, plumbing and other trade contractors indicated reverse logistics was a relevant discipline in their business. Yet only 10 percent of respondents said their software handled reverse logistics "very well," while more than 37 percent said their software was an impediment to successful reverse logistics processes. Just 14 percent of HVAC companies in the IFS study reported having implemented reverse logistics software, despite the fact that there is a real and documented need.

Respondent organizations in the IFS trade contractor study did not have to be very large before reverse logistics became important to them. Companies between $5 million and $10 million in revenue were



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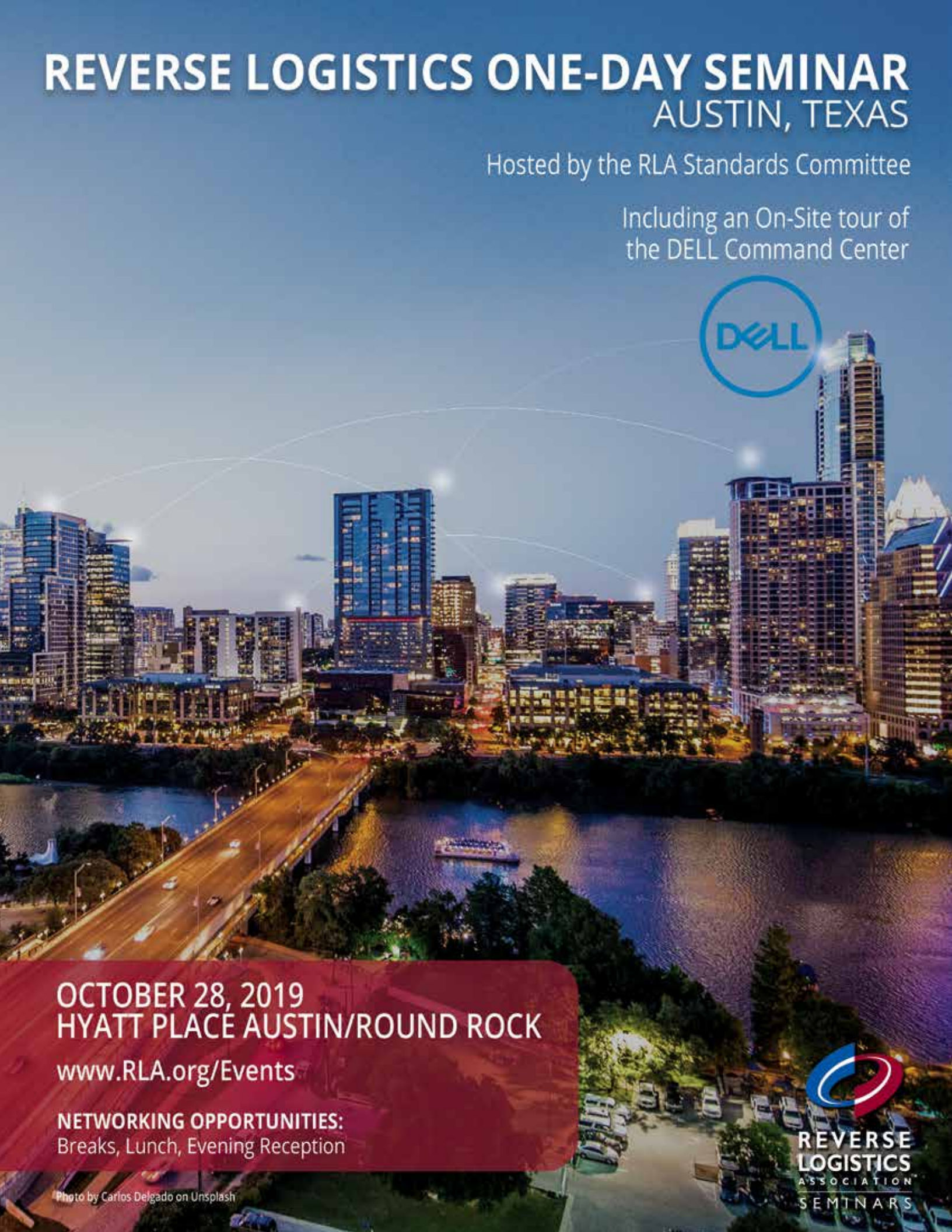

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least likely to report involvement in reverse logistics at 73 percent. This is in contrast to 88 percent of companies between $10 million and $20 million, 89 percent of those between $20 million and $50 million and 90 percent of those over $50 million.

SOFTWARE LEAVES REVERSE LOGISTICS GAPS FOR FIELD SERVE ORGANIZATIONS

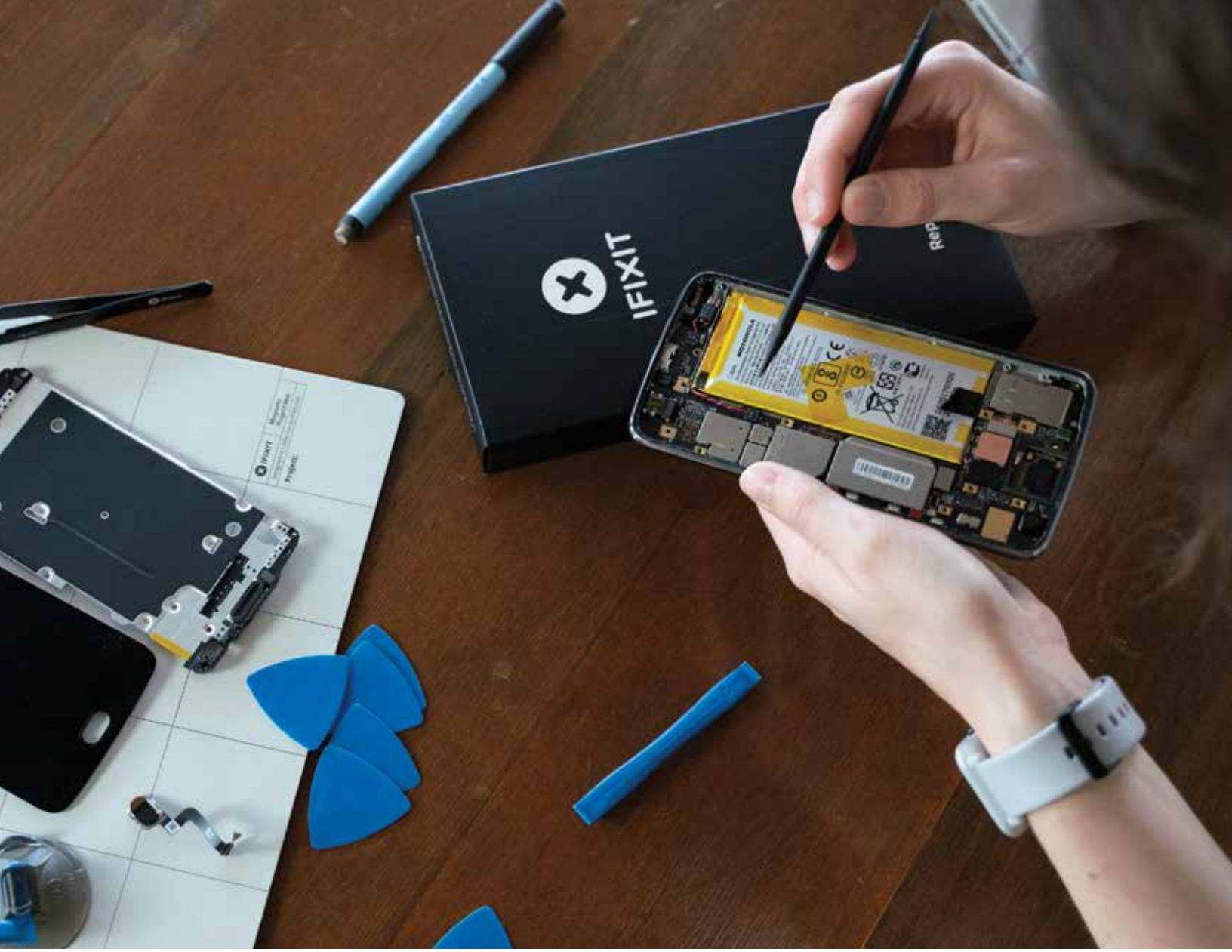
A survey of field service organizations conducted for IFS by WBR Research suggested that field service organizations still face substantial gaps when it comes to reverse logistics with 45 percent struggling with serial traceability and tracking of the location and status of parts during the reverse logistics process.

And while 42 percent had problems handling the return materials authorization (RMA) process, 24 percent cited the component repair and overhaul process as a functional gap. Training and education of bench and repair technicians, managing third party contractors involved in the service process, tracking a specific piece of equipment and the customer site the part came from—as well as determining who owns a part once it is removed from a customer's equipment—all ranked as challenges for field service organizations.

A CRITICAL DISCIPLINE FOR THE FUTURE OF SERVITIZATION

Reverse logistics is a critical business discipline across multiple product- and asset-centric industries regardless of company size. Current trends among companies offering aftermarket services to augment and differentiate products and assets means it is desirable to treat these aftermarket activities as their own profit center as opposed to a net cost or as overhead. This means companies will be under increasing pressure to implement enterprise software that encompasses and streamlines steps in the aftermarket service value chain, not only to ensure profitable returns and depot repair, but to protect or enhance the customer experience and comply with regulation.

Charles Rathmann has more than 25 years of experience in business-to-business journalism, primary research, industrial product marketing, media relations and sales and business development. Rathmann holds a degree in journalism from the University of Wisconsin-Oshkosh and is based in IFS's Brookfield, Wis. office.



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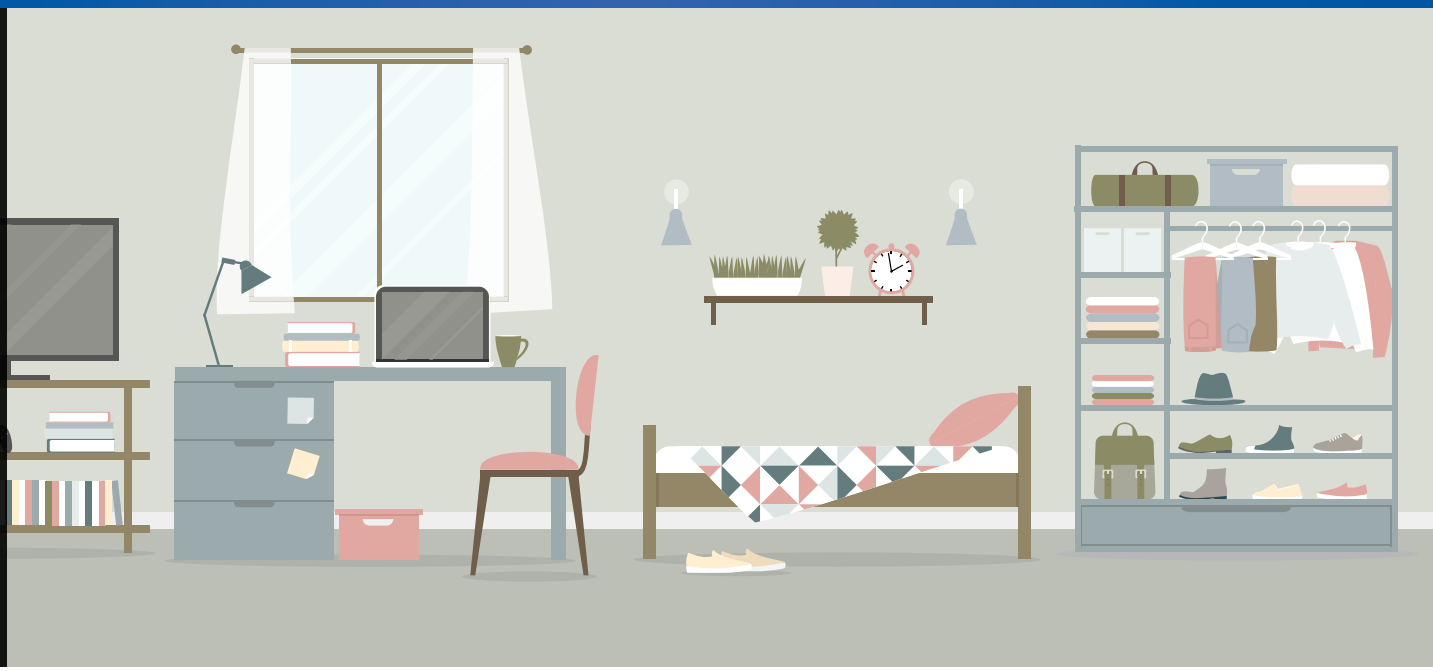
Time for Free Reverse Logistics Items and Volunteer Clean Up

By Dr. William Oliver Hedgepeth, Faculty Member, Transportation and Logistics Management, American Public University

ARTICLE



Students at Virginia Commonwealth University (VCU) in Richmond can pick up free classroom materials and furnishings for their dorm rooms when they arrive on campus at the start of the fall 2019 semester. This generosity is part of the university's sustainability program. The free items include small refrigerators, clothing irons, coffee pots, textbooks, trash cans, lamps, even bicycles, nearly all the items needed to furnish a small apartment.

"The Office of Sustainability is opening a new Free Store, to serve as an inclusive, on-campus resource to address basic necessities of living for members of the VCU community," according to a VCU announcement.

Rather than grind up everything or throw it in the trash can, this free store is an example of reverse logistics. It takes unwanted items and cleans them, repairs them if necessary and gives them away to any student who walks into the store.

This program puts a positive spin on the more traditional business process of taking unwanted items to a trash dump or sending them to a processing plant to be turned into basic raw materials -- such as glass, plastic, wood, paper or metal -- and used for remanufacturing goods.

INSTITUTIONS OF HIGHER LEARNING ARE PARTICIPATING IN A NATIONWIDE COMPETITION

Today, over 600 colleges and universities are taking recycling seriously and reducing trash on campus. These academic institutions have turned reverse logistics into a business and a contest, which is significantly different than VCU's application of reverse logistics.

Many of them participate in a nationwide annual competition called RecycleMania, which encourages students, faculty and administrators to clean up their environment. This year some 300 campuses in 43 states competed in RecycleMania in 2019. That included 4.25 million students and 900,000 faculty and staff for a total of more than 5.1 million participants. (VCU did not participate.)

The competition measures such factors as how much of a campus's waste stream is recycled, how much is diverted; per capita results; food waste abatement and more. It also examines the effect of educating young people to avoid single-use plastics such as disposable bottles and packaging.

Participants included Colleges and universities from across the country, including:

- University of Virginia-Charlottesville
- College of William and Mary
- Ohio State University
- Loyola Marymount University
- Rutgers University

- North Carolina State University
- Union College
- Knox College

Recycle Mania will host an informational webinar for its International Coastal Cleanup on September 21. This is where you will find all ages from college students to retirees doing their part for recycling. This cleanup activity has been going on for over 30 years. This activity is looking for volunteers and you can be one of these, not just those college students competing in RecycleMania or giving away free stuff. It is easy to volunteer to start a cleanup for your organization.

UNIVERSITIES ARE EMBRACING COMPETING TO ELIMINATE TRASH

Many colleges and universities promote the recycling part of reverse logistics. The 2012 RecycleMania Grand Champion American University has set a goal is to become 100% waste free, according to the Best College's Recycling Survey.

At AU furniture is recycled or reused. The university composts "all paper towels from restrooms on campus and all kitchen waste from three dining areas. Bottled water and food trays have also gotten the ax, cutting waste by 32%," the Best Colleges Survey reported.

Valencia College, in Orlando, Florida, took home the RecycleMania gold for waste minimization each year from 2012 to 2014, a category designed to encourage schools to reduce their waste output of both trash and recyclables. Valencia encourages the use of both sides of the paper for essays and other written work.

Other colleges that are making a sustained effort to reduce waste include:

- The College of the Atlantic
- Kalamazoo College
- Chatham University
- Harvard University
- Purdue University
- Brown University
- Georgia Institute of Technology
- University of Connecticut

NOT ALL ITEMS ARE RECYCLABLE

While the list of items colleges and universities recycle is extensive, there are numerous items that cannot be recycled, including:

- Shredded paper
- Brightly colored paper
- Pizza boxes
- Home glass
- Bottle caps
- Wet paper
- Milk and juice cartons
- Paper coffee cups
- Used baby diapers
- Aerosol cans
- Ceramics and pottery

These items cannot be recycled because they contain chemicals, grease or wax that will contaminate the basic recycled items. For instance, different colors of ink will bleed on paper. Shredded paper destroys the strength of the fibers needed for recycling it into other paper products. The grease in pizza boxes will harm any recycled items they might be used for.

It would be interesting to see a list from all these schools of the products that must go into the trash pile. That would become a new target of zero trash, a new research project for professors and a few good research papers for students, maybe even a dissertation or two.

REVERSE LOGISTICS IS CHANGING OUR DEFINITIONS OF SUPPLY CHAINS

How does this impact the supply chain? It creates new supply chains. Schools like VCU are doing much more than giving free refrigerators to incoming students. They are adding a new direction for product supply chains. Overall, these programs are changing the definition of supply chains. These universities listed above do offer degrees in logistics and supply chain management. However, of these 17 universities listed, none offers a degree in Reverse Logistics. The only academic university that appears to offer such a unique degree is one whose courses are totally online. You can earn a Master of Arts in Reverse Logistics Management from American Public University, APUS. And APUS has a BA degree in Reverse Logistics Management. However, APUS being totally online like similar colleges or universities does not have a student body living on a campus. While online schools cannot promote programs that allow it to compete with RecycleMania, the online degrees can promote an awareness of the reverse logistics business.

ABOUT THE AUTHOR

Dr. Oliver Hedgepeth is a full-time professor at American Public University (APU). He was program director of three academic programs: Reverse Logistics Management, Transportation and Logistics Management and Government Contracting. He was Chair of the Logistics Department at the University of Alaska Anchorage. Dr. Hedgepeth was the founding Director of the Army's Artificial Intelligence Center for Logistics from 1985 to 1990, Fort Lee, Virginia.

The Future of Retailing
A Logistics Perspective

By Tony Sciarrotta, Executive Director, RLA

ARTICLE

They say that the retail experience is undergoing a radical technology shift. Ostensibly, this will make many business processes obsolete. Such disruptions have occurred before—when catalog sales were introduced; when big-box stores displaced mom-and-pop stores, business models changed. Somehow, the retail experience survives. Squeezing the fruit, trying on the clothes, will never be totally replaced by on-line shopping and drones. My smart refrigerator cannot re-order tomatoes for me! Yes, some store brands are suffering and will not able to adapt, but the retail experience will find a new model.

Some form of a brick and mortar store will always be a part of our economic cycle. While the process will become more automated, human interaction and decision making will remain its crucial nexus. The positive side is that these evolutionary changes also enable better decision-making with less effort. Being able to see yourself in a virtual wardrobe without having to physically change clothes will be nice. That "virtual reality" view of yourself will be better than a cramped changing room with a mirror. Picturing that new sofa in your home virtually will save a lot of buyer's remorse.
There is a raft of new technologies emerging for the retail channel. Experiential retail with augmented and virtual reality is just a part of our future shopping experience. Virtual display technology that collects shopper reactions and engages in-store-customers will enhance the experience. Micro-fulfillment and semi-customized manufacturing (3-D printing) with in-store personalization will evolve stores into small manufacturing and warehousing outlets.

Logistics will also continue to play the critical enabling role in the process. However, logistics, too, will undergo many changes: automated driverless vehicles and drones and vision recognition will dramatically impact the logistics industry. We can expect automation to replace many of today's logistics staff, though new job descriptions will supplant "truck drivers."

CNBC reported last January (2019) that one-quarter of American jobs are at a high risk of automation. Most of those jobs will be in low-skilled labor including warehousing and logistics. Their summary of a Brooking Institute report suggested that 55% of jobs in material handling and transport are in danger of automation, as are 49% of repair jobs.

While this may be viewed as pessimistic by many, human staff will continue to be required and valued, but with higher level skill sets. Can you manage a robot? Can you fly a drone? If yes, then your job is secure. If not, now is probably a good time to learn. Those who master such skills before corporate decides to "upgrade" are likely to be the ones who get the new positions.

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It is not that difficult to upgrade your skills. The Reverse Logistics Association continues to offer seminars and events that provide updates and training on cutting edge issues facing our industry. The RLA has targeted being a leading promoter of innovation in logistics. Our Standards Committee has developed innovative protocols for enhanced product labeling. These enhancements—adopted by ANSI, facilitate applications in repair and refurbishment, as well as for the consolidation of logistics labeling. We are now exploring the use of blockchains for refurbished product disposition and asset management. We are also exploring focus groups and new product evaluations with the creation of a Logistics Technology Roundtable. We expect to begin such focus groups to begin this coming year. Contact our Standards Committee through our web site if you would like to participate in these focus groups: https://rla.org/committee/standards.

The market may evolve. But somebody will always have to get the products and the materials from one place to the next. There will always be a need for competent staff who are on-top of the trends and technologies that drive (pun intended) commerce. The RLA is a critical part of that process.

View from Academia[1]

Be Aware of Returns when Managing Mass Customization Products!

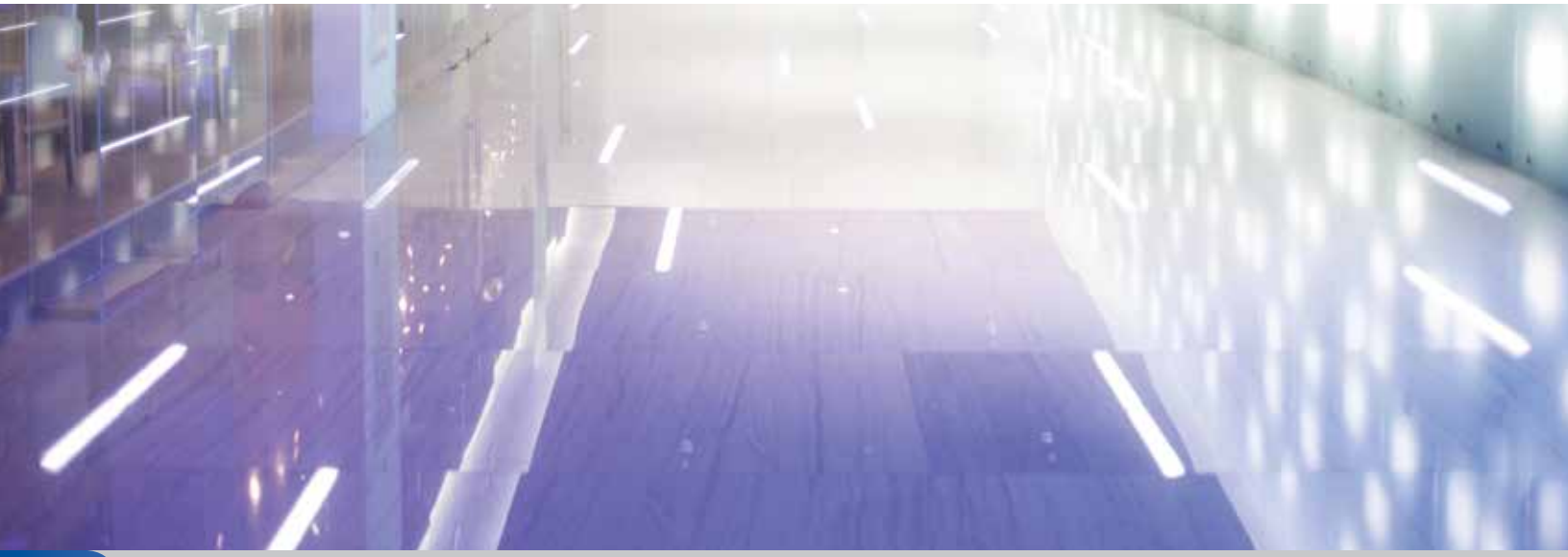
By Mark Ferguson (U of South Carolina), Michael Galbreth (U of Tennessee), Guangzhi Shang (Florida State U)

Mass customization and high variety are strategies to satisfy diverse consumer taste in today's marketplace. While they bring in additional customer demand, they are also costly to implement. When product variety segments the customer base into increasingly small buckets, the aggregate demand uncertainty is dramatically inflated, compared to a low variety retailer. This means a lot more safety stock (excessive inventory) needs to be carried to guard against the demand uncertainty. When variety is high enough – common when personalization is allowed, the inventory holding cost becomes unbearable to make the business profitable. Usually, this is when a complete overhaul of the supply chain strategy becomes necessary: an "inventory waiting for demand" strategy is gradually replaced by a "demand waiting for inventory" strategy. What the latter requires is a "quick-response" manufacturing and logistics process. Therefore, when selling high variety or mass customization products, retailers in general have two options to improve profitability: holding excessive inventory or re-engineering the supply chain for quick response.

The reverse flow of consumer returns adds further complications to this already delicate choice. In their recent publication in the journal of IEEE Transactions on Systems, Man, and Cybernetics: Systems, Dr Shu Guo (University of Liverpool) and colleagues tackle exactly this challenge. They note that a great starting point is to differentiate the salvage values of returns and excessive inventory. Through analyzing a stylized supply chain of a mass customization retailer, they show that if the salvage value of returns is high, the appeal of a quick response supply chain is reduced. Since quick response is often a long-term, effort intensive change for retailers, this result offers important strategic insights for high variety retailers at the crossroad between quick response and excessive inventory. Further details from this study can be found below:

Guo, S., Choi, T. M., Shen, B., and Jung, S. (2017). "Coordination and enhancement schemes for quick response mass customization supply chains with consumer returns and salvage value considerations" IEEE Transactions on Systems, Man, and Cybernetics: Systems, DOI: 10.1109/TSMC.2017.2766207.

[1] This recurring series provides plain-English summaries of leading academic research in the area of consumer returns. It is co-produced by Mark Ferguson (Univ. of South Carolina), Michael Galbreth (Univ. of Tennessee), and Guangzhi Shang (Florida State Univ.).



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Participation in RLA Industry Committees	Participation in RLA Industry Committees	Participation in RLA Industry Committees
Corporate Logo and Website Link on RLA.org	Corporate Logo and Website Link on RLA.org	Corporate Logo and Website Link on RLA.org
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Posting Approved Member's White Papers	Posting Approved Member's White Papers	Posting Approved Member's White Papers
RFIs* and RL Quote - 3PSPs can Access/Respond to RFIs*	RFIs* and RL Quote - 3PSPs can Access/Respond to RFIs*	RFIs* and RL Quote - 3PSPs can Access/Respond to RFIs*
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