How a Paper Manufacturer Fulfilled Rising Customer Demands Enabling Growth by Increasing Efficiency, Inventory Turns & Sales

Identifying Opportunities to Meet Customer Demands:

According to a 2018 Deloitte survey, 95% of supply chain leaders find it challenging to meet increasingly higher customer demands and 75% find it very or extremely challenging.

Within that context, the world's leading manufacturer of tissue, pulp, paper, packaging, lumber products, and building materials held a primary concern of getting products to their customers "on-time, in full & damage-free." The network is highly complex, with five manufacturing sites plus a co-pack location generating finished product, in addition to three Wisconsin warehouse locations. A combined trailer pool added to the challenge with all entities competing for trailers from the pool without any transportation control. Plants were simply pushing inventory at the shuttle provider who, in turn, would deliver between zero and eighty inbound loads to the distribution center in a day. The flood of inbound trailers climbed to over 200 trailers at peak time periods causing high equipment dwell, inability to meet customer shipments, and lack of empty pool trailers available for the plants, all of which risked shutting the plant down. Inbound loads from other mills and DC's contained damaged product from improper handling, and over, short and damage (OS&D) results were unacceptably high causing risk to customer satisfaction.

Congestion leading to 3 week trailer dwell & delayed shipments

Interleaving & directed work not implemented, increasing load times & labor cost

Technology could not meet e-commerce needs, limiting profitability

Action 1: Eliminating Gridlock to Increase On-Time In Full Shipments, Accelerate Inventory Turns, and Enable Growth via Shorter Cash-to-Cash Cycles

The inability to predict and adapt to unexpected demand surges and troughs is one of the biggest reasons that three quarters of supply chain VPs find it very or extremely challenging to meet customer demands. As our customer struggled with these challenges, inventory would spike up to 25% in excess of demand. When this occurred, the distribution center would overflow while the plant kept producing which compounded the issue.

Product would surge to the DC without notice and as the space filled, gridlock would result with up to 220 loaded trailers in the yard containing product needed for outbound shipments. Trailers stuck in the yard could not be returned to the plant or network, which limited production and caused a ripple effect that set back warehousing and distribution.

In the space-constrained distribution center, product was handled multiple times causing inventory tracking challenges and damage. Inventory turns decreased and cash conversion slowed as product piled up in the yard. Customer shipments failed to be met on-time and in full. This is a common challenge at many manufacturers as systems are built for minimums or standards rather than surge protection.

After synchronizing the distribution, warehousing, yard management and transportation functions through technology, each location can now report their production plans, inventory, thresholds, and specify which trailers are presently idle. Product surges to the DC are known in advance and plans can be made before the avalanche of product hits. Even under the most severe surge conditions, dwell time was reduced by fourteen days. As a result, the maximum trailer count fell from 220 to only 65 at the worst point in time, which kept an additional 150 loads in motion to meet customer shipments. A key benefit was that full truckload on-time service results improved by 5% at a time where critical customers were ratcheting up fines due to on-time in full violations.

Action 2: Utilize Technology to Increase Efficiency While Improving On-Time In Full Performance to Customers.

Most national providers' websites, including Ryder and NFI, claim that they can implement interleaving; however, we have learned that they cannot support manufacturers where technology-assisted decisions are needed. As a result, product is on the forks only 50% of the time because warehouse employees would travel only in one direction while carrying a pallet. By using WMS technologies, which can be customized to your operation in as little as three weeks, our paper manufacturing client was able to increase their efficiency and have product on the forks on more movements reducing labor costs.

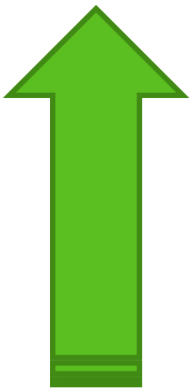
We have also learned that most WMS technologies do not provide an option for countback functionality. Of those that do, only the most agile allow for customization to meet the customer's needs. In this application, forklift operators pick the product and quickly validate what is remaining in the bay by identifying loose cases, layers, and full pallets. Any inventory issues are found real time and can be corrected before errors in staged loads leave the distribution center. With bay accuracy at 99.8%, the cost associated with OS&D has been reduced by $350k per year, and on-time results have risen by 5% creating an extremely high level of confidence regarding the accuracy of customer orders.

RGL is the Only 3PL in the Manufacturer's Network That Practices Interleaving and Countback

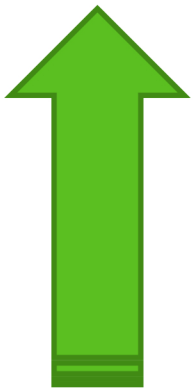
Action 3: Increase Sales by Meeting Growing E-Commerce Customer Needs

Many 3PLs are limited by canned technology and are not able to quickly customize a software program that is specifically designed for manufacturers and their order fulfillment needs. For example, our paper manufacturing client reached out to a national WMS provider who said it could take "a year or more and hundreds of thousands of dollars" for a custom picking program to support their customer's unique requirements. This manufacturer was unable to ship product directly to end customers or businesses who are purchasing on the Staples or Grainger Online Catalog as they were unable to deal with the complexity of shipping 2,000 small packages a day via FedEx in addition to pool loads and LTL shipments. By utilizing a fast and flexible solution through our WMS, the manufacturer was able to make adjustments within six weeks, as opposed to over a year. Our WMS was the first in the network to leverage labeling capabilities to create the perception that product was shipping from the Staples or Grainger DC instead of our manufacturing client. By using technology that is more aligned with their strategy, a competitive advantage was created as the manufacturer removed unnecessary transportation and product handling. This also shortened lead time and improved service performance to their customers which resulted in increased sales.

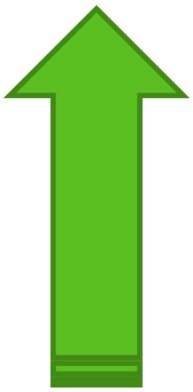
Values Achieved by Synchronizing Together



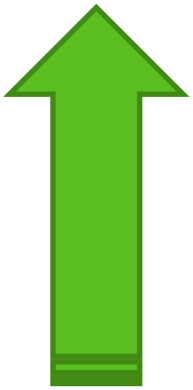
Over short & Damage Savings of $350,000



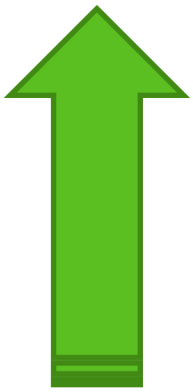
Labor Productivity 3% Increase



On-time shipments 5% Increase



E-commerce & Direct Shipment Growth Over 900,000 Orders Filled Per Year



Detention Trailer Cost Avoidance of $3M Annually

Future Value That Can Be Achieved Through Further Collaboration and Synchronization

RGL understands that 3PLs are an extension of your team and a collaborative growth partner that helps your supply chain evolve, scale, and meet your specific needs. In working with the manufacturer to identify next steps towards their objectives, additional growth opportunities were uncovered and await exploration:

1 Simplify order fulfillment for complex orders (20 - 25% of total orders)

We suggest the manufacturer work with their customers to identify strategies for reducing complexity in the ordering process, thereby increasing efficiency and impacting cost. As an example, products being delivered to the same locations can be grouped together to increase the utilization of full pallets picked rather than multiple partials. Another improvement is to review their customers' ability to receive by full pallet layers instead of individual carton counts. Both approaches significantly increased operational efficiency and improved customer experience for Grainger.

2 Expand Direct to Consumer business to enable growth

The fulfillment center at the DC currently ships small pack orders to business customers and consumers, with the majority moving B2B. CPG could increase its e-commerce business by offering unique products directly to consumers, bypassing 3rd parties such as Amazon. The RGL WMS is already configured to ship to consumers, so cost to implement and time to scale would be minimized.

3 Standardize WMS technology and processes among all DC's and warehouses

No other location is able to implement interleaving and countback, which positively impact efficiency, labor costs and service. Because of this, we see an opportunity to standardize our WMS technology and processes among all DCs and warehouses. This would also protect growth as the manufacturer would be better equipped to meet the needs of the mixing center, distribution center, and order fulfillment customers.

Unlike 50% of 3PLs managing warehouse, distribution and transportation for manufacturers RGL has focused on synchronizing the supply chain for both growth AND cost reduction for more than 100 years. As a result, clients have seen 400% increases in inventory turns, 45% reduction in disruption risk and tighter relationships with customers as bottlenecks have been removed to give customers what they want, when they want it at the right price.