

# Taming the Long Tail of Inventory

Driving Value in Aftermarket Parts  
and Service Supply Chains

WHITE PAPER

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## Driving Value in Aftermarket Parts and Service Supply Chains

### Executive Summary

Aftermarket parts and services account for 8% of the annual gross domestic product in the United States, with U.S. consumers and businesses spending more than \$700 billion each year on spare parts and services for previously purchased assets, such as automobiles, aircraft and industrial machinery. On a global basis, spending on such aftermarket parts and services totals more than \$1.5 trillion annually.

In this white paper, we will examine the drivers of supply chain complexity and outline recommendations to tame the challenges of optimizing long-tail inventories.

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Aftermarket  
parts and  
service areas  
have profit  
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for initial  
product sales  
and post-sale  
parts.

## Considering the Facts

According to industry reports, the typical company provides parts and service for an average of more than seven years after the initial product sale. Aftermarket parts and service areas have profit margins as much as 10 times those for initial product sales and post-sale parts. These areas are key to securing customer loyalty, fostering brand identity and maintaining a competitive differentiation. For some companies, aftermarket parts and service can account for as much as 20-30% of revenues and 40% of total profits.

At the end of the day for the aftermarket parts businesses, it comes down to the customer experience including price, selection, convenience and availability. In fact, in a recent industry survey sponsored by Logility and APICS, 49% responded, "Improve customer service ..." when asked, "What is the top priority for your supply chain?"

For some companies, aftermarket parts and service can account for as much as 20-30% of revenues and 40% of total profits.

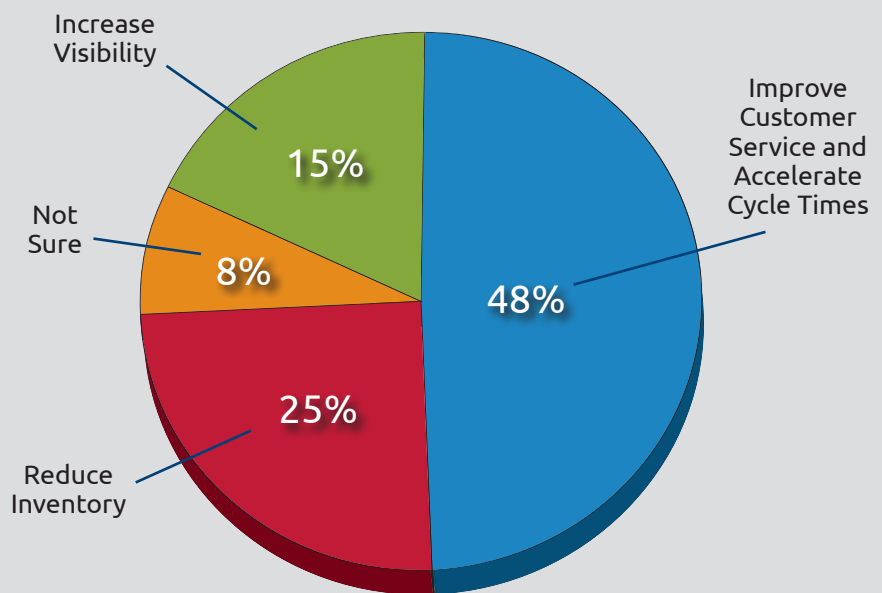


Figure 1: Top supply chain priorities

Source: Logility and APICS

## The Pareto Principle and the Long Tail of Inventory

Most things in life are not distributed equally—that's the gist of The Pareto Principle. The Pareto Principle is also known as the 80/20 rule because for many observations, roughly 80% of the effects come from 20% of the causes. Applying the Pareto Principle to supply chain management leads to the observation that 20% of products or customers tend to contribute 80% of revenue or sales. Supply chain professionals tend to focus on the 20% to maximize sales and profits and often neglect the 80% due to lack of resources.

However, managing the other 80% can be as important, or even more important, to the success of an aftermarket parts and service supply chain. When applied to inventory management, this 80% (B and C Items in Figure 1) becomes the “long tail of inventory.” The long tail of Inventory is a concept studied by statisticians since the 1940s. In business, a long-tail strategy is one in which a small quantity of a large number of unique items are sold (the “long tail”). Long-tail strategies are often executed in conjunction to selling fewer popular items in large quantities (the “head”).

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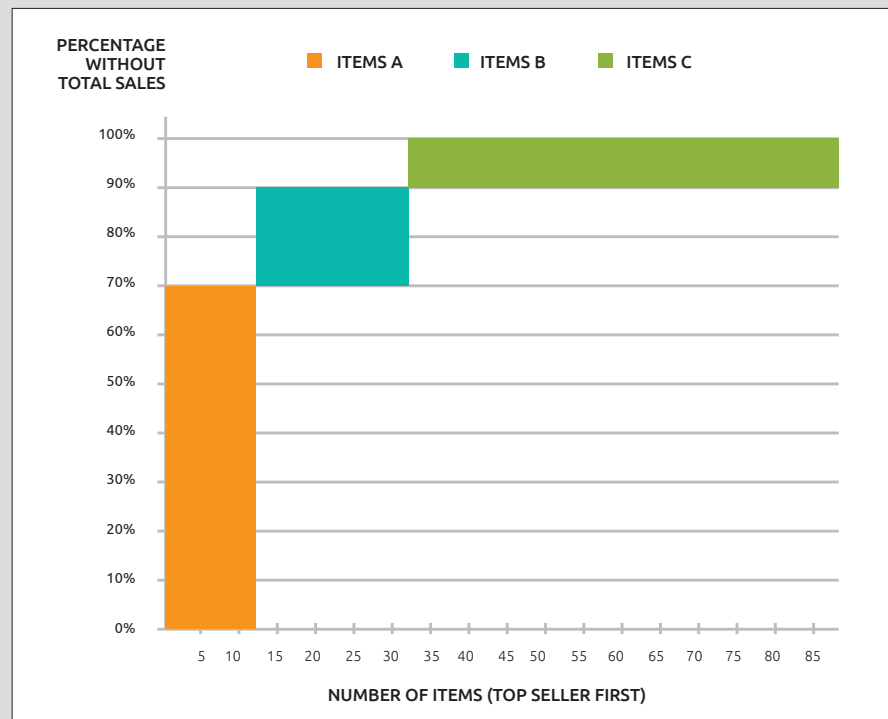


Figure 2: ABC Pareto graph—illustrating the long tail of inventory

## Long Tails in Aftermarket Parts and Service Supply Chains

The long tail of Inventory strategy is especially relevant for aftermarket parts and service businesses because challenges stem from the huge number of Stock Keeping Units (SKUs), unstable and unpredictable demand, and the complexity of the overall supply and distribution network. Increasing supply chain complexity from global business trends also aggravates the long tail. Sales that are geographically scattered occur in smaller quantities and require specialized products. However, other trends can affect a long-tail strategy, including:

- **New Product Introductions**—Companies offer an ever-increasing assortment of new products and variants, causing SKUs to increase faster than sales, and reducing average sales per individual SKU.
- **The Amazon Effect**—Customers expect faster and more frequent deliveries increasing demand variability. Frequency of demand drives the need to plan in shorter time buckets from a larger number of facilities. What may appear as stable demand in a monthly planning cycle could be much more unstable when viewed in weekly or even daily buckets. Deliveries that are more frequent lead to more intermittent or “lumpy” demand patterns.
- **Multi-Channel Distribution**—Companies need to offer their products through distribution channels preferred by their customers. This leads to a disaggregated planning approach with demand managed at more points. Similarly, what might appear to be stable demand at a central distribution center quickly becomes lumpy and unstable at local distribution points, retail locations and e-commerce channels.

The long-tail inventory management problem is more challenging in an aftermarket parts and service supply chain than in a high-volume manufacturing or distribution supply chain. Demand is more lumpy and intermittent, making it harder to develop accurate forecasts. In a long-tail environment, demand and inventory planning become more challenging, thus increasing the need for advanced planning systems. Spreadsheets and basic forecasting found in enterprise resource planning (ERP) solutions cannot provide the capabilities required to deal with highly variable, intermittent demand.

Without adequate planning tools, inventory location and mix become misaligned with customer demand, leading to a suboptimal inventory position. In a fast evolving business, overstocked items lead to obsolescence and understocked items lead to stock outs, spot buys and expediting charges. Through a focus on short-term firefighting, you can find yourself alternating between stock outs and over stocks on the same item. In these situations, the long tail devours a large share of your available working capital, without delivering commensurate benefits in revenue, profit and customer service.

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## Successfully Taming a Long-Tail Supply Chain

Successfully managing inventories and achieving high service levels throughout multiple distribution channels require the adoption of the following advanced technologies:

### Advanced Demand Planning

Managing the aftermarket parts and service supply chain is more complicated than that of a finished goods supply chain. Benefits of an accurate forecast include significant improvements in revenue through better in-stock availability and cost reductions through reduced safety stock, inventory obsolescence, spot buys and expedited replenishments. More importantly, lower forecast error leads to higher gross margin and shareholder value through the combination of higher revenues and lower costs. According to the Aberdeen Group, implementing an advanced demand planning solution improves forecast accuracy by an average of 13%, delivering a 10% reduction in inventory and a corresponding 5% improvement in gross margin.<sup>1</sup>

<sup>1</sup> "Demand Planning Segmentation: Getting the Max Out of Your Business," Aberdeen Group, 2013

Managing the aftermarket parts and service supply chain is more complicated than that of a finished goods supply chain.

### Benefits of an Advanced Demand Planning Solution



Figure 3: Advanced demand planning

Source: The Aberdeen Group, 2013

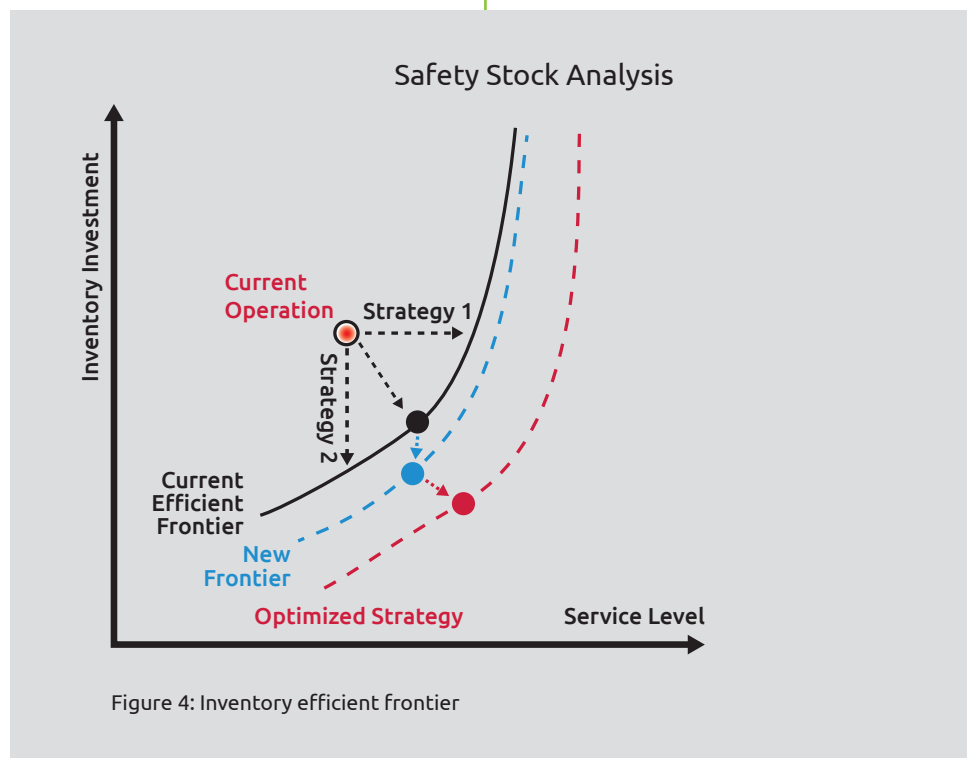
## Comprehensive Inventory Planning and Optimization

Many companies use a blunt, one-size-fits-all approach to aftermarket spare parts inventory management instead of a dynamic and more precise approach. An inventory plan, based on “experience” or “perception” instead of service level, lead-time and demand variability, often drives a mushrooming inventory position.

What is needed is an inventory planning approach that looks across the extended supply chain including raw materials, work in process (WIP), and finished goods inventory located in manufacturing, distribution centers, partner facilities, and “in transit” between facilities across multiple channels. Multi-Echelon Inventory Optimization (MEIO) enables such an approach.

An MEIO approach helps balance and align inventory across the supply chain, optimally locating inventory buffers to provide the best customer service at the lowest cost. Implementing a MEIO approach will often lead to a complete shift in the Inventory Efficient Frontier (see Figure 4) allowing better service levels at lower overall inventory investment. Companies that have implemented MEIO have seen inventory reductions of 20-30% while maintaining or improving customer service levels.

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## Collaborative Supply Planning and Optimization

The aftermarket and service parts supply chain usually involves multiple planning parties including the supplier, OEM, wholesaler and dealer or retail customer, resulting in poor visibility to supply chain information. Every supply chain partner makes plans from his own viewpoint, leading to an escalating bullwhip effect resulting in increased inventory on each level and overall inventory inefficiency.

Advanced supply planning and optimization practices help match the most profitable options to the least-cost methods that satisfy all requirements. The adoption of advanced supply chain planning and optimization strategies can lead to a 5-10% boost in customer service levels and a 10-30% reduction in inventory. Other benefits highly beneficial to the spare parts business include faster fulfillment cycle times, reduced out-of-stocks and lost sales, lower material acquisition costs and lower freight costs.

## Multi-Modal Transportation Planning and Optimization

Retailers are not the only ones reeling from the “Amazon Effect.” Amazon is fundamentally changing the traditional thinking around customer satisfaction, distribution networks and operations and making many of today’s supply chains obsolete.

Using advanced transportation management is a critical link to executing a winning aftermarket and service parts supply chain experience. For a spare parts business representing thousands of daily shipments across dynamic multi-modal distribution networks, transportation costs can represent as much as 8% of a total revenue and 40-60% of logistics expenditures. Advanced transportation planning and optimization strategies can help you reduce those costs as much as 30% while enabling faster and more reliable on-time deliveries.

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## Integrated Business Planning

Leading experts in the aftermarket parts and service industry believe that factors such as strategic focus, investment strategies, risk mitigation, opportunity management and internal collaboration are the keys to consistent long-term business performance. Integrated Business Planning, which involves both Sales, Inventory & Operations Planning (SIOP) as well as longer term financial and strategic planning, is the key to enabling functional alignment and synchronized short, medium and long-term business planning. In fact, a recent Aberdeen Group Survey found that integrated business planning users were 76% more likely to evaluate and optimize service policy to maximize cash flow and profitability than non-users.<sup>2</sup>

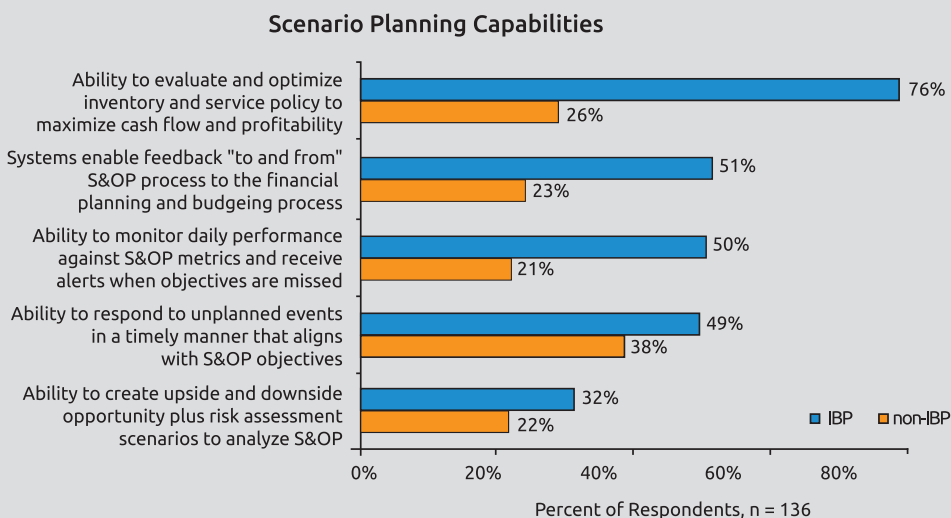


Figure 5: IBP users versus non-IBP users

Source, Aberdeen Group, 2016

<sup>2</sup> "Integrated Business Planning (IBP): Capability Advantages for IBP vs Non-IBP Users," Aberdeen Group, 2016

### Benefits of Integrated Business Planning (IBP)

- Better alignment of strategic goals to tactical plans
- Faster, more informed decision-making based on an end-to-end view of the business
- Better alignment of supply to demand
- Improved inventory turns
- Better handling of supply chain disruptions
- Clear ownership of plans
- Increased accountability for execution
- Reduced planning time

## Customer Success Stories

**Global power sports leader** with annual sales of \$4.7 billion

**Problem:** Growing global competition and increasing supply chain complexity provided opportunity to improve its service levels and reduce transportation expenses by bringing a new distribution center online with an advanced supply chain solution.

**Solution:** Logility provided advanced demand, inventory, and supply planning solutions to effectively manage forecasts and replenishment needs at the distribution center.

**Results:**

- Ability to increase capacity
- 18% revenue growth with single digit increase in headcount

**A leading manufacturer and distributor of engine management** and air conditioning replacement parts for auto aftermarket including warehouse distributors CARQUEST and NAPA, and retailers Advance Auto Parts and AutoZone.

**Problem:** Growth was limited due to high inventory levels and low customer service levels.

**Solution:** Using Logility Voyager Solutions™, the company dramatically reduced inventory while maintaining extremely high service levels.

**Results:**

- Improved forecast accuracy
- Optimized inventory investments
- Streamlined new product introductions and old product retirements
- Improved collaboration with key customers and suppliers
- Reduced supply chain costs while improving visibility into supplier operations across a global supply network

## Conclusion

For most companies in the aftermarket parts and service business, enhancing customer satisfaction and generating repurchase opportunities are the main business drivers. According to a global survey conducted by Deloitte, parts and service business on average accounts for more than 35% of total OEM revenues. For a third of OEMs, the revenue generated from their parts and services business contributes more than 50% of total revenue. Deloitte also found that in mature markets, profit margins for spare parts are 76% higher than that of the conventional finished product business.<sup>3</sup>

Today major barriers in the spare parts supply chain lie in improving capabilities in demand planning, inventory planning and optimization, collaborative supply planning, multi-model transportation planning and optimization, and integrated business planning. To profitably operate and grow your business, improving capabilities in these areas is imperative.

The key is to have the systems and processes in place that effectively manage the long tail, without taking convenient shortcuts that can lead to inaccurate models and erroneous decisions. A scientific, no-shortcuts approach can help you reach unprecedented efficiency and service level excellence in an increasingly challenging long-tail world.

<sup>3</sup> "Driving Aftermarket Value: Upgrade Spare Parts Supply Chain," Deloitte Consulting, 2013.

For additional reading, download the  
**"Service Parts Management:  
 The Linchpin to Successful  
 Service Operations"** white paper.



## About Logility

With more than 1,250 customers worldwide, Logility is a leading provider of collaborative supply chain optimization and advanced retail planning solutions that help small, medium, large, and Fortune 500 companies realize substantial bottom-line results in record time.

Logility Voyager Solutions is a complete supply chain management and retail optimization solution that features a performance monitoring architecture and provides supply chain visibility; demand, inventory and replenishment planning; sales and operations planning (S&OP); integrated business planning (IBP); supply and inventory optimization; manufacturing planning and scheduling; retail merchandise planning, assortment and allocation; and transportation planning and management.

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