

How Elite Service Organizations Are Transforming Their Service Supply Chain

Aftermarket/Spare Parts Inventory Management

Significantly reducing carrying costs while improving service response

Operations, Logistics and Parts Delivery

Supporting dynamic expedition and customer-prioritized execution to optimize costs and efficiencies

Intelligent customer service escalation

Leveraging comprehensive visibility to drive ultimate customer loyalty



BAXTER
PLANNING

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CHAPTER 1

Service and Customer Loyalty are now Front and Center.

The stakes in Service Supply Chain Management are higher than ever.

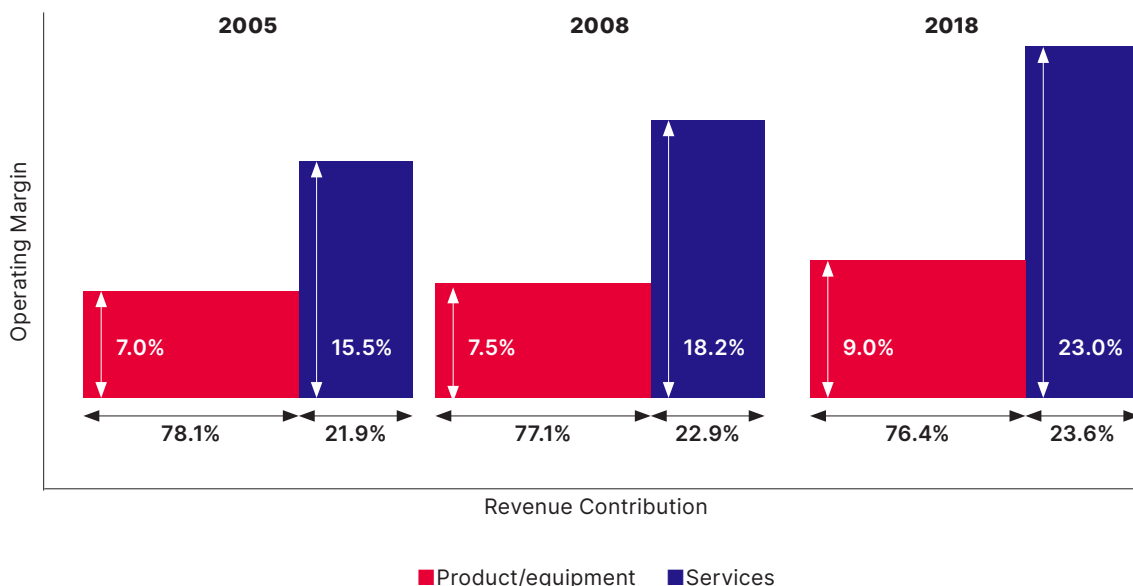
Across diverse global industries—from medical imaging equipment and exabyte computer servers to tractors and wind turbines—companies have recognized the tremendous profit potential in running sophisticated service organizations to install and maintain their products. In some cases, service organizations have morphed from an obligatory operating chore to a key revenue stream that easily outpaces new product sales.

For U.S. manufacturers, the average operating margin from their global aftermarket business is about 2.5 times their operating margin from new equipment sales.¹

FIGURE 1

U.S. INDUSTRIAL MANUFACTURERS ARE EXPANDING INTO SERVICES AS THEY OFFER HIGHER MARGINS

Product/equipment vs. Services Revenue and Operating Margin



Sources: Deloitte analysis of financial reports of major US industrial products companies; executive interviews.

¹ Deloitte, *Deloitte Insights: Aftermarket Services*, Wellener, Millar, Bendig & Hussain, 5/14/2020

Aftermarket Services—A faster path to new revenues. (If you do it right.)

In a recent report, another of the world's leading business advisors says: "growth through aftermarket services offers a comparatively short and straight path to new revenue streams." The gating factor, of course, is that it depends upon the company really understanding their customer's needs—and delivering accordingly.

These consultants promise: "industrial companies that understand their customer base, adequately prioritize aftermarket sales, and relentlessly focus on execution can boost their services revenue by 30 to 60 percent within three to five years—without requiring large investments in capex, new-product development, or cost-reduction programs."²

Right part. Right place. Right time.

Part of "doing it right," means creating a Service Supply Chain (SSC) infrastructure that can take full advantage of today's—and tomorrow's—digital capabilities (e.g. IoT, RFID, GPS tracking, etc.) When you're in the business of making sure the right parts are moving to the right place at the right time, your ability to maintain continual visibility into your entire operation—including those legs managed by third-party partners—will determine your ability to deliver a service experience that wins satisfied, loyal customers.

"Continuous Insights."

This means connecting your entire organization so that you can speak with one voice: One industrial machinery report from 2022 put it this way: "Effective operationalization of digital investments and technologies includes **building and operating an effective knowledge management system to share customer and aftermarket service knowledge across functions and teams.** By setting up connected data warehouses and data hubs for seamless intracommunication capabilities, manufacturers and service providers can leverage data to generate continuous insights."³

How are the stakes are rising for the service supply chain?

- > Aggressive, iron-clad SLAs
- > "Leak points" in multi-echelon strategies
- > The still-wobbly global supply chain

How the global Service Supply Chain is changing. (Spoiler: It's not getting easier.)

In 1909, UK retail pioneer Harry Selfridge used the term "the customer is always right," and for more than a century now, customers have been raising their expectations (okay, demands) accordingly.

² McKinsey, *Aftermarket Services: The near-term growth opportunity in targeting the right customers*, Benjamin, Brink, Kervazo, et al. 1/24/2019

³ Transparency Market Research: 2022 Industrial Machinery Repair/Aftermarket Services Market Outlook

Modern SLAs: You need to be predictive.

Today, with teams of lawyers, auditors, and efficiency experts in their ears, companies are creating exacting Service Level Agreements (SLAs) that exceed anything seen in decades.

The bad news is, it's no longer simply about response and repair times, or availability of spare parts: companies want to put you on-the-hook for their lost revenue during downtime. The good news is, they are willing to handsomely reward a service organization that can deliver:

More customers are emphasizing Service Level Agreements that guarantee product uptime and are thus looking for service providers who can proactively support their equipment *before* it is out of service. *[emphasis added]* In return, these customers are willing to pay a price premium.⁴

For service supply leaders, that means being able to have deep insight into the full product lifecycle of your spare parts, no matter how layered or complex that may be.

For example, imagine you're a U.S. West Coast manufacturer of drilling equipment for offshore oil & gas operations. You've got an open ticket to replace a very large piece of equipment for your largest customer in the North Sea. Knowing that you have a similar/suitable replacement part scheduled for refurbishment in the Netherlands could allow you to refurbish in-place and send that product along to the North Sea, saving weeks in transport, and thousands in back-and-forth shipping.

To make savings like this possible (and predictable) you need to have a cohesive end-to-end platform that replaces today's manual or siloed approaches—ideally a system that has been created by people with a deep understanding of the nuances of service-supply and aftermarket parts management.

Achieving 100% control over echeloned supply chains.

Any service leader worth their salt knows there is never an acceptable time to say, "I don't know" or, "It's out of my hands." The fact is, in your customer's eyes, you own full responsibility for their problem from the minute they inform you until the time it's fixed.

This can provide compounded challenges when dealing with multi-echeloned Service Supply Chains. For one thing, the costs of expediting delivery (in order to meet a modern SLA) can range dramatically. Practically everyone in the industry has stories of service leaders commandeering the corporate jet in order to personally deliver that critical component to save the day with their largest customer, but everyone recognizes this isn't a viable everyday strategy for millions of parts.

⁴ Deloitte, *Deloitte Insights: Aftermarket Services*, Wellener, Millar, Bendig & Hussain, 5/14/2020

In fact, expediting costs—driven by customers’ “Amazon expectations” of next-day or same-day delivery—represent a significant challenge to most SSC managers who are looking to preserve profitability. This is one of several potential “leak points” in many of today’s SSC operations—with variations that can clearly be “make or break” for any sized company.

If you’re boasting of service levels in the 90th percentiles, but spending millions on expedites to achieve those levels, your approach may have some room for improvement.

A recent article in *Supply & Demand Chain Executive* points out the huge disparity between organizations who have mastered this aspect, and those who are still lagging:

There is a considerable gap between top and bottom performers when it comes to expediting: While top performers spend 3 percent of the total cost of logistics on expedited costs, bottom performers spend more than three times that amount at 10 percent.⁵

Global Supply Chain is still recovering. (But new unknowns loom for 2023-24.)

The three-year disruption of the COVID-19 pandemic seems to mostly have abated, according to industry watchdogs, but these same sources are raising new concerns for the coming 18 months.

A January ‘23 forecast by editors at *Supply Chain Dive* included the following assessment:

After more than two years of nonstop disruption, it appears that supply chains are finally approaching balance.

Freight rates have fallen back down to earth from record highs. The ship queue off the Port of Los Angeles has all but disappeared. And what was once a carrier’s market is beginning to shift back in favor of the shipper.

Still, threats remain...

In the U.S., shippers are bracing for the potential of labor strikes that could bring freight movement to a halt. Negotiations with dockworkers at West Coast ports still loom large, while UPS workers have made it clear they’re willing to strike if a labor agreement isn’t reached this summer...

5 Supply & Demand Chain Executive—Mitigating Expediting Costs in Logistics, 2/19/2020 APQC

6 Supply Chain Dive—TRENDLINE The Supply Chain Outlook for 2023, 1/31/23 Sarah Zimmerman, ed.

...While a slowing economy is driving down ocean and trucking rates, last mile rates have remained persistently elevated, putting a strain on shippers' finances.⁶

Other factors are at work, creating both pitfalls and opportunities for SSC managers who are sufficiently aware and agile to respond quickly and decisively. For example, as air cargo carriers experience overcapacity and decreasing demand, many will offer rate incentives to fill planes. And the expected expansion of Amazon into a more aggressive 3PL play ought to be factored into the mix for aftermarket parts suppliers who needs to align.

The point in all of this is that the ability to see and act on a landscape that changes by the hour will lead SSC manager to the best outcomes—at the lowest cost.

CHAPTER TWO

AI can weigh the facts— but the right outcome requires *your* judgement.

Today's empowering technologies (AI/ML, IoT, etc.) can be brought together to create a more predictive, proactive, and responsive Customer Service infrastructure.

Today's new focus on the power and potential of the Service Supply Chain (SSC)

During the COVID pandemic, more companies leaned on their service organizations to pick up the revenue slack in the face of delayed or deferred new product sales. The upside of this pressure was that additional resources were often made available to service organizations, new interest from the C-suite was awakened by its profitability, and attention from academics and business analysts resulted in a fresh set of strategies and tools for the SSC, including tools powered by the latest capabilities in Machine Learning and Artificial Intelligence (ML/AI).

With the pandemic as context, a major consulting firm called out five areas for improvement for aftermarket service providers:

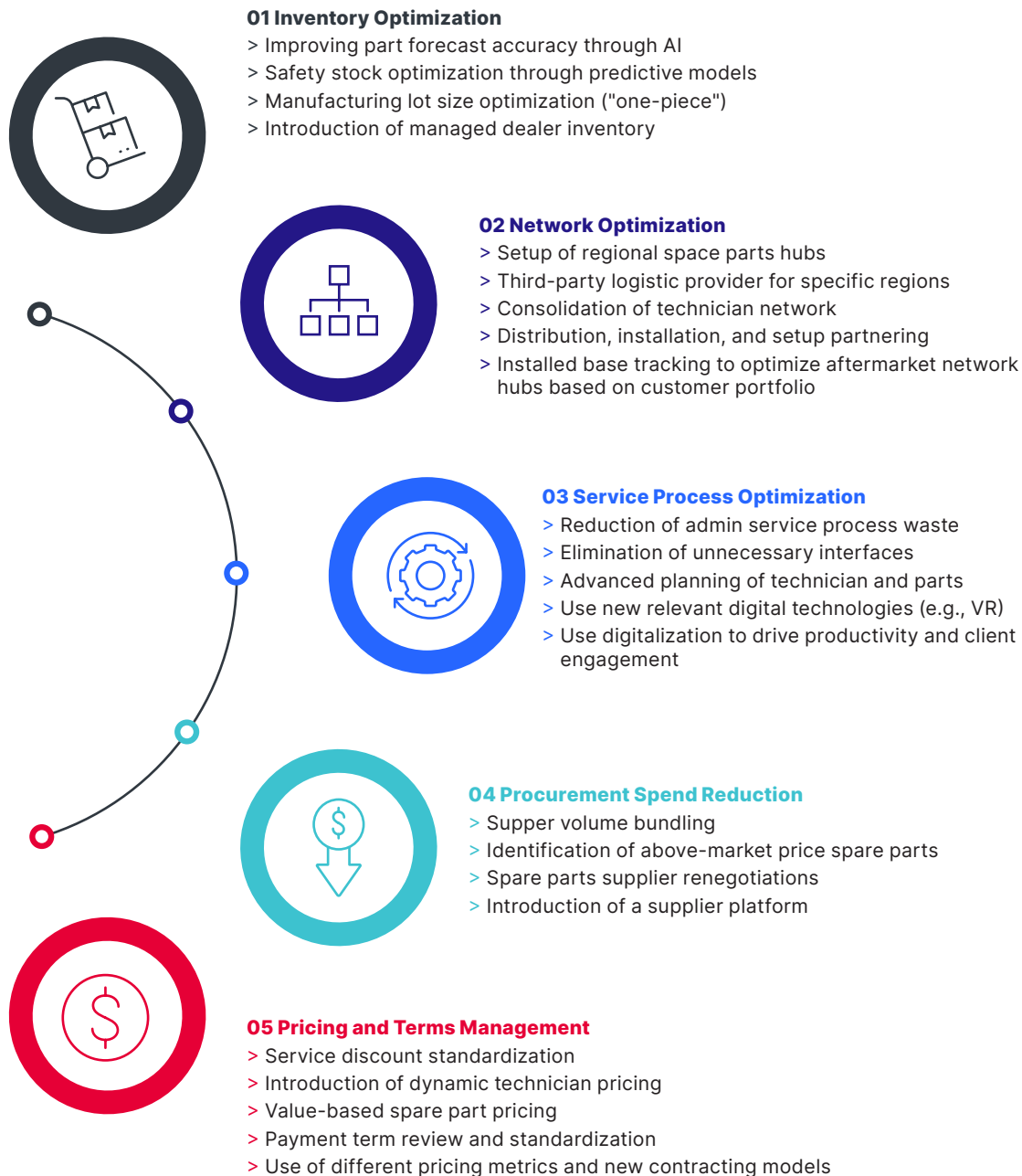
1. Inventory Optimization
2. Network Optimization
3. Service Process Optimization
4. Procurement Spend Reduction
5. Pricing and Terms Management⁷

The firm went on to suggest key capabilities and tactics that would be required to support these optimizations. (See Fig. 2 on the next page)

6 Deloitte, *Deloitte Insights: Aftermarket Services*, Wellener, Millar, Bendig & Hussain, 5/14/2020

FIGURE 2

FIVE IMPROVEMENT AREAS FOR AFTERMARKET SERVICE PROVIDERS IN LIGHT OF THE GLOBAL COVID-19 CRISIS



Source: Deloitte analysis based on executive interviews with manufacturing leaders and subject matter specialists.

In addition to these high-level interventions, there are additional areas where AI/ML can have both immediate and longer-term impacts. Below are some concrete steps you can take, using AI/ML to address these improvement areas:

Improvement Area	Opportunities for Immediate Progress	Planning for Future-State Success
Inventory Optimization	Validate target stock levels for each part at each location in the logistics network using Total Cost Optimization.	Manage replenishment and redeployment orders to balance inventory in the logistics network by calculating real and potential costs of each backlog.
Network Optimization	Perform logistics network modeling reviews to identify potential network changes while ensuring that business rules correctly map demand to sites based on business objectives.	Explore additional connectivity and integration opportunities with logistics providers (e.g. SRM) and understand how they are using AI/ML to support more agile and automated workflows.
Service Process Optimization	Changes in service expectations, products, installed base, logistics networks, and planning solutions can disrupt business processes and results.	Improve operations via the analysis of reports including Planning Analytics that intelligently assign and track root causes for each non-optimal fulfillment of demand.
Procurement Spend Reduction	Generate recommended supply orders based on target stock levels, lead time, minimum quantities, and other netting criteria to execute the inventory plan and control costs.	Enhance your data mining capabilities to more confidently plan inventories that layer-on additional third-party data to further optimize inventories at every echelon.
Circular Supply Chain	Forecast returns (good and defective) in support of future repair order planning, ensuring defective materials are used as a source of supply while calculating and applying yield/scrap rates.	Build in automated analytics that account for new-product introductions, end-of-life planning and other adjacent impacts to make better decisions about returns, refurbishments, and more.

AI Can Point to Improvements—(If You'll Believe It)

As in any technological advance's early days, AI still hasn't earned universal credibility. This leads some planners to override recommended stocking approaches. This "second guessing" can erode the benefits of strategies like autonomous planning, if you don't give these solutions the opportunity to prove themselves.

What to do About Inventory/Planning?

Can AI/ML Help with Root Causes?

Service organizations inevitably invest a lot of capital in inventory. But if they aren't careful, ballooning inventory can put significant strain on cash resources and drive down return on invested capital (ROIC).⁸

Bloated inventories can have many root causes, in the case of one large industrial equipment manufacturer, a six-month intervention into their spare-parts inventory management dropped slow-moving inventory by more than 30%, while creating gross margins of more than 60% on those parts.

Before the company began the program, its aftermarket inventory had grown unchecked for years. Moreover, the usual challenges of the sector were compounded by internal process and management issues.

Previous management incentives emphasized revenue and margins over cash, with commercial teams sometimes ordering two lots of parts for the same equipment at the same customer: one set for a basic scheduled overhaul, and an additional set of more advanced parts, just in case the customer was willing to pay more for better performance.

Adding to high levels of inventory, operations teams kept large buffer stocks to make up for problems such as low forecast accuracy, lack of communication with sales teams, poor delivery performance by suppliers, and a limited view of the inventory held at different sites. Then there was a growing pile of obsolete spare parts, including customized parts from cancelled orders and items inherited through acquisitions.⁹

⁸ McKinsey—*Turn Slow-moving Inventory Into Fast Profits*, Baldesi, Kervazo, and Lavandier, 11/7/2019

⁹ McKinsey—*Turn Slow-moving Inventory Into Fast Profits*, Baldesi, Kervazo, and Lavandier, 11/7/2019

Using AI to make world-leading systems—even better.

The world's first name in computing—already a leader in global service provision—was looking for a way to give its team even more confidence in meeting 2-hour SLAs with a service inventory that ran to more than 350,000 parts. They tapped a partner with deep SSC planning experience and adopted a predictive AI-supported platform that is on-track to deliver **eight-figure inventory savings**, while actually improving the company's ability to improve upon its already best-in-class net promoter score.

One of the most impactful ways AI is achieving these quantum leaps is by providing actual, real-time location status of millions of parts and making dynamic recommendations for their allocation. To be maximally effective, this tracking needs to extend throughout the entire supply chain—including robust interfacing with 3PL solutions.

These visibility data providers have been called by Gartner “Real-Time Transportation Visibility Platforms” (RTTVPs), provide companies with enhanced insights into the status of their shipments by tracking goods throughout the various stages of a supply chain, from the procurement of raw materials to production and delivery.¹⁰

Key to leveraging this data (along with myriad additional IoT data), is your solution's ability to ingest all available input and to use AI/ML to **make dynamic predictions and recommendations that meet the specific objectives of each individual customer**—based on their priority to your service team.

Today's end-to-end, AI-powered control towers.

The world's largest distributor of electronic components manages approximately 7 million unique parts and has a dedicated division for spare/service parts. Managing and meeting thousands of unique SLAs for their customers requires a sophisticated technology platform that maintains visibility and control of a part—from inventory, to dispatch, through dozens of logistics partners, to delivery—while providing continual “control-tower” communications to managers who oversee the entire process (including backorder management and reverse logistics/stocking.) The company makes full use of their platform's AI functionality to maintain optimal inventory levels at their distribution hubs and depots based on actual historic data combined with additional AI-provided intelligence on product lifecycles, economic forecasts, business reporting, and more.

Operations and Logistics: Avoiding blindspots and profiting from agility.

For years, the logistics steps in a Service Supply Chain have been “an invisible discipline,” according to some analysts. Today—with so many options—logistics has become an opportunity for improved customer experience and competitive differentiation.¹¹

¹⁰ Chain.io—“How Freight Forwarders Can Use Real-time Visibility Data to Compete and Win”

¹¹ “How to Improve Customer Service with Real-time Supply-Chain Visibility” Conor Bayne, FourKites

The essential capability in generating greater profitability from these opportunities is being able to spot chances to make smart changes—and having the technology to quickly effect change without disrupting the flow of a part from inventory to customer.

Service leaders who employ predictive technology can make on-the-fly adjustments, while updating customers earlier in the process—giving everyone a better range of options.

The case for urgently adopting AI in the Service Supply Chain.

The automobile manufacturing supply chain has long been a bellwether for the SSC. Though distinct in some respects, best practices developed for these well-established supply chains often migrate to the service world in slightly adapted ways.

In looking at today's tiered automotive supply chain, the case for AI is now firmly in-place:

AI offers three key advantages addressing core issues at the heart of supply chain failures: greater transparency, speed, and predictive ability. With those objectives in mind, prioritizing the adoption of AI-powered technology is perhaps the single most impactful step that carmakers and OEMs can take to mitigate risks and improve auto supply chain resiliency.¹³

The reasons for incorporating AI involve the speed and sheer scope these solutions deliver:

AI is good at predicting things that people can't, by avoiding human error and factoring historical data into the equation. It can instantly synthesize data on component usage and maintenance, and weigh that information against historical performance and parts lifespan to correctly assess the probability of supply chain failures.

AI can also more accurately anticipate transportation slowdowns before they happen. Machine learning can examine historical traffic data, driver performance, on-time departure percentages and weather patterns, to predict the best possible shipping route.¹⁴

The Real Benefits of Logistics Visibility and Agility...

According to one US digital freight platform, better visibility can reduce:

- > Detention charges by 15-25%
- > Time spent tracking shipments by 40-70%
- > Time spent on customer inquiries related to visibility by 50-60%¹²

¹² HwyHaul logistics "Real-time Transportation Visibility" 2/17/2023

¹³ Supply Chain Brain—AI and the Future of Automotive Manufacturing, Ryan Rusnak, 2/3/2022

¹⁴ Supply Chain Brain—AI and the Future of Automotive Manufacturing, Ryan Rusnak, 2/3/2022

“Customers primarily look at transparency and speed to resolution when it comes to aftermarket services. To improve the customer experience, we are investing in digital platforms that will enhance customers’ visibility into our production and material systems.”

— MARK SCHMIDT, VICE PRESIDENT,
AFTERMARKET BUSINESS AT
EATON CORPORATION INC.¹⁵

The Service Supply Chain is already rapidly advancing, putting significant investments into AI-driven technology upgrades to reap fast and impactful results. Companies like Eaton Corporation have been very vocal about the customer satisfaction outcomes they’re pursuing:

The importance of “end-to-end.”

In a 2021 report, McKinsey stresses the importance of managing the supply chain journey “from procurement to sales” with an end-to-end view:

“Supply chain management solutions based on artificial intelligence (AI) are expected to be potent instruments to help organizations tackle these challenges. An integrated end-to-

end approach can address the opportunities and constraints of all business functions, from procurement to sales. AI’s ability to analyze huge volumes of data, understand relationships, provide visibility into operations, and support better decision making makes AI a potential game changer. Getting the most out of these solutions is not simply a matter of technology, however; companies must take organizational steps to capture the full value from AI.”¹⁶

Even with the right software, you still need qualified team members to plan and forecast complicated supply chain requirements that are unique to your organization.

The advantages of niche expertise.

Many companies have a difficult time keeping sufficient internal planning experts that can manage all aspects of the organization’s supply chain. Finding a partner that can help beyond the technology piece can be a great competitive advantage. This is especially true with *Service Supply Chains*, where category-specific expertise results in a greatly accelerated time-to-value.

Fortunately, there are such niche companies—with some even offering “Planning as a Service” options that allow you to tap as much of their expertise as you prefer.

Depending on your organization’s internal capabilities, you may choose different levels of Planning as a Service, or opt for training, mentoring, and consulting from the same experienced team.

¹⁵ Deloitte, *Deloitte Insights: Aftermarket Services*, Wellener, Millar, Bendig & Hussain, 5/14/2020

¹⁶ McKinsey—*Succeeding in the AI Supply-chain Revolution*, Alicke, Dilda, Görner, et al. 4/30/2021

CHAPTER THREE

Seeing the full picture is key to boosting service profits.

Customer Service leaders require real-time, end-to-end visibility to optimize profitability while driving unerring customer satisfaction.

The evolution of the supply chain “control tower” and its application to the Service Supply Chain (SSC).

IBM defines an AI-powered control tower as being able to provide “*end-to-end visibility across inventory silos and disparate systems—from raw material availability and supplier orders to the last mile of customer delivery. It provides accurate, real-time, available-to-promise inventory to drive improved decision-making and outcomes.*”

Supply chain control towers are connected, personalized dashboard of data, key business metrics and events that enable organizations to confidently understand, prioritize, and resolve critical issues—in real time.

Leveraging AI and ML, the best control towers provide end-to-end visibility across the supply chain—particularly into unforeseen external events, helping you break down data silos, reduce or eliminate manual processes, and get real-time actionable insights.

What makes a great control tower solution?

> Continual Data Flow

Data must be instantaneous and dynamic to allow for on-the-fly adjustments, expediting, and customer communications

> End-to-end Visibility

Eliminate silos with one platform that works from stockroom to customer location

> Predictive and Prescriptive Decision Support

Leverage AI to not only anticipate unexpected issues, but to provide workable solutions

The ultimate objectives are to better predict disruptions, improve resiliency, manage exceptions, and respond to unplanned events.

“It’s been my observation that the business world has a weak understanding of inventory management and control. They are trained shallowly, and sometimes they apply only shallow experience to their practices. In my 30 years of experience, however, I have seen that a lot of money can be saved by training and managing inventory control in-depth.”

— DR. DAVID F. PYKE, PROFESSOR OF OPERATIONS, U. SAN DIEGO¹⁷

For companies supplying service provision, building the ultimate control tower requires deep service-parts category knowledge. It is a unique discipline with lots of variables and peculiarities that don’t always arise in solutions created by ERP or forward supply-chain vendors.

In-depth experience in inventory management and control has long been recognized by experts who study the profession, and what applies to inventory management, in general, is even more true in *service* supply chain management:

AI in “process mining.”

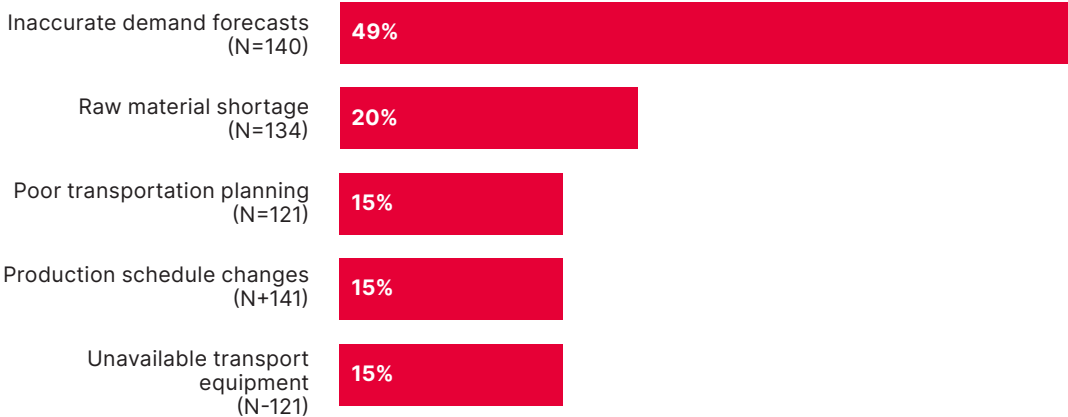
One of the first areas where category experience will become clear is in “process mining,” that is, using AI and ML to analyze historical process metrics for use in optimizing functions like

forecasting, and logistics. The simple truth is: the more experience a vendor has in Service Supply Chain Management, the more relevant data AI/ML tools will have to learn from.

For example, according to APQC’s Open Standards Benchmarking data, expediting costs can be tied to a company’s proficiency in demand forecasting. “Broadly speaking, expedited orders result from failures that occur in supply chain planning. If an organization’s demand forecast is full of bias or based on poor quality data, it could fail to order the right amount of material to meet demand.”¹⁸

FIGURE 3

CAUSES OF EXPEDITED ORDERS



With SLAs measured in minutes, every moment counts!

A 2022 article from Supply Chain Brain recaps the value of examining and optimizing every link in your Service Supply Chain, acknowledging that rather than a single “silver bullet,” AI-driven solutions are more likely to provide a plethora of incremental improvements that add-up to significant impact:

Rapid and informed decision-making is key. But in order to move quickly, stakeholders need to have data at their fingertips. With improved transparency, AI offers unparalleled speed. In addition to providing more data points and visibility, the technology can improve the decision-making process itself, minimizing human error.

AI streamlines activity across the supply chain. While traditional methods rely on phone calls and emails to coordinate an order, future-focused intelligent platforms can optimize every step of the process. Suppliers are already using AI to automatically provide real-time quotes for parts and services based on optimal routing and digital tariffs. In the instance of a downed production line, this can help restore assembly operations as quickly as possible.

Auto routing and direct dispatch further expedite the delivery process. AI also critically speeds reaction times, allowing logistics partners to respond instantly to traffic, weather delays, and other travel issues, cutting troubleshooting time in half. Intelligent automation saves staff from being involved in these decisions, shortening the decision process.

AI can learn from mistakes, evolving for better outcomes over a shorter period of time. When it comes to automotive logistics, for example, machine-learning systems will penalize a route in the event of a failure, noting the hiccup and logging the data to prevent that route from being utilized in future.¹⁹

Because communication plays *the vital role* in ensuring customer satisfaction, managers need to have all the facts (at all times) for the credibility and trust that preserves relationships.

19 Supply Chain Brain—*AI and the Future of Automotive Manufacturing*, Ryan Rusnak, 2/3/2022

Will My Customers Even Notice?

Addressing the real value in major technology investments.

Exploring any new process or technology update requires careful consideration, and a cold evaluation of costs and benefits.

Harvard Professors James Heskett, Earl Sasser, and Len Schlesinger, were among the first to begin quantifying the bottom-line benefits of satisfied customers back in 2008. Their seminal HBR article, “Putting the Service-Profit Chain to Work,” drove thousands of businesses to make significant efforts to secure customer satisfaction—and later understand the even more telling metric of customer *loyalty*.²⁰

In 2015, some of the authors of the original article presented updated recommendations with regard to enhancing customer experiences using technology. These suggestions were:

- 1. Make sure you understand the “defining element” of your customer experience.**
- 2. Apply technology that adds *significantly* more value than cost.**
- 3. Be in the “relationship” rather than the “transaction” business.**

For large organizations managing millions of transactions, even a few basis points of channel migration can represent significant cost savings. Service leaders understand, however, they aren’t in the transaction business—they are in the relationship business. Their goal is to build lifetime value for their target customers and earn their loyalty by delivering an experience that creates significant advocacy. As a result, they drive down the cost of marketing and put those dollars to better use for real value creation.

Robert Stephens, the founder of Geek Squad has said:
“Advertising is the tax you pay for being unremarkable.”²¹

20 Putting the Service-Profit Chain to Work, *Harvard Business Review*, Heskett, Sasser, Schlesinger, et al. 2008

21 Arizona State University Center for Services Leadership—Joe Wheeler, “*The Service Profit Chain: Reloaded*” 12/11/2015

CHAPTER FOUR

Sooner. Faster. Guaranteed. Introducing the “No Excuses” Service Supply Chain.

**More Visibility Creates More Options.
More Options Mean Happier Customers.**

When you have truly locked-down your Service Supply Chain you can be confident you are delivering the highest levels of service possible for each prioritized relationship.

The power of a confident promise.

Some of us are old enough to remember the early days of Federal Express and the slogan coined by Amarati and Puris: “When it absolutely positively has to be there overnight.” At the time, this was a revolutionary concept and the operational foundation that underpinned its success was celebrated in business school cases and public-television programs like *In Search of Excellence*.

What FedEx was selling was confidence. No excuses. A guarantee of performance that was unequivocal.

Forty years on, with same-day delivery and drone-powered logistics, customers are holding you to these expectations—whether you’re prepared to offer them or not. Of course, your competition is controlled by these same expectations and parameters.

End-to-end visibility.

What that means for Service Supply Chain (SSC) leaders is ensuring that you have built into your operations every opportunity to be informed of a service part’s progress at every step along the way—ideally with the help of AI/ML advantages.

Aligning with your customers’ definition of success.

In a recent report from Deloitte, they emphasize the need to understand precisely what KPIs and measures your customers are using to evaluate their service relationship with you.

In one trend among manufacturing customers the measure is becoming “overall equipment effectiveness,” (OEE) that is—using uptime as a controlling element in their SLAs.

Here is an excerpt from that report [emphasis added]:

To help customers improve their overall OEE, manufacturers should establish processes that are proactive and integrated end-to-end from suppliers to customers. Manufacturers should be proactive, agile, and adapt to customer needs by aligning the resolution speed in line with customer expectations.

This likely entails focusing on supply chain responsiveness to improve speed-to-resolution and prioritizing quality service to provide better customer experience and improve customer engagement. Manufacturers could work to make replacement parts feed data, alerting operators when replacement or changes are needed as part of moving from a “reactive” to a “proactive” approach to service.

Effective operationalization of digital investments and technologies includes building and operating an effective knowledge management system to **share customer and aftermarket service knowledge across functions and teams. By setting up connected data warehouses and data hubs for seamless intracommunication capabilities, manufacturers and service providers can leverage data to generate continuous insights.**²²

22 Deloitte, *Deloitte Insights: Aftermarket Services*, Wellener, Millar, Bendig & Hussain, 5/14/2020

At Baxter Planning, a focused Service Supply Chain technology leader, an end-to-end predictive SSC platform uses AI and ML to allow customers like IBM and Dell to gain 100% visibility into the full journey of an aftermarket part from planning to installation, and beyond to full product lifecycle.

This is an example of what an end-to-end SSC solution can look like:

FIGURE 4

BAXTERPredict: YOUR END-TO-END PLATFORM

AREA OF FOCUS	Planning	Operations	Escalation
DEDICATED SOLUTION	BAXTERProphet	BAXTERLynx	BAXTERSnapshot
REAL-WORLD FUNCTIONALITY ENHANCED BY AI	Supply chain planning & forecasting	Process tracking & control	Escalation case management
	Global network optimization	On-time delivery & SLA dashboard	Escalation backlog queue
	Technical inventory planning		
	Inventory management	Substitution logic	Predictive root cause & resolution
	Backlog criticality index		
	Repair & reverse logistics	Part locator	Standard and personalized workflows
	Advanced lifecycle planning (ALP)	Defective return controls	Structured curation of findings
	Total cost optimization		
	Installed base management	Backorder management	Trend analytics dashboard
ADVANCED ANALYTICS	Historical trend reporting Control towers Outlier alerting Self-service reporting Extended data sources		
INTEGRATION	The BAXTERPredict platform integrates with hundreds of adjacent technologies including all major CRM, ERP, and 3PL solutions		
SUPPORT & OUTSOURCING	Baxter offers Planning as a Service [PaaS] partnerships that instantly put decades of experience to work for your organization for training, implementation, planning or full outsourcing.		

Leading service providers know that customer loyalty is the key to profitability.

In 2008, *Harvard Business Review* published the seminal article “Putting the Service-Profit Chain to Work” and global businesses quickly got behind the idea that “customer satisfaction drives profitability.” Research for the article showed that a 5% increase in customer loyalty could result in profit jumps from 25% to 85%.

A 2022 article in *Newsweek* suggests that the correlation between customer satisfaction and increased profits remains strong: “companies with high customer satisfaction [report] 5.7 times more revenue than competitors.”

According to a study by Bain & Company, **a 5% increase in customer loyalty increases profits by more than 25%**, depending on the organization and industry.

Consumer surveys from 2020 show that, on average, **57% of loyal customers spend more than new customers.**

Furthermore, when customers are loyal, they not only come back, but they bring others with them—with one report showing that **loyal customers are four times more likely to refer friends to a company**, generating new sources of revenue.

The service-profit chain, examined.

It may be worth reviewing the findings of the original HBR article in order to see how today's AI/ML-driven Service Supply Chain tools can be leveraged to reap the proven benefits of improved customer satisfaction, and thusly loyalty, especially for managers looking to present compelling cost/benefit analyses for needed technology investments:

The service-profit chain establishes relationships between profitability, customer loyalty, and employee satisfaction, loyalty, and productivity. The links in the chain (which should be regarded as propositions) are as follows:

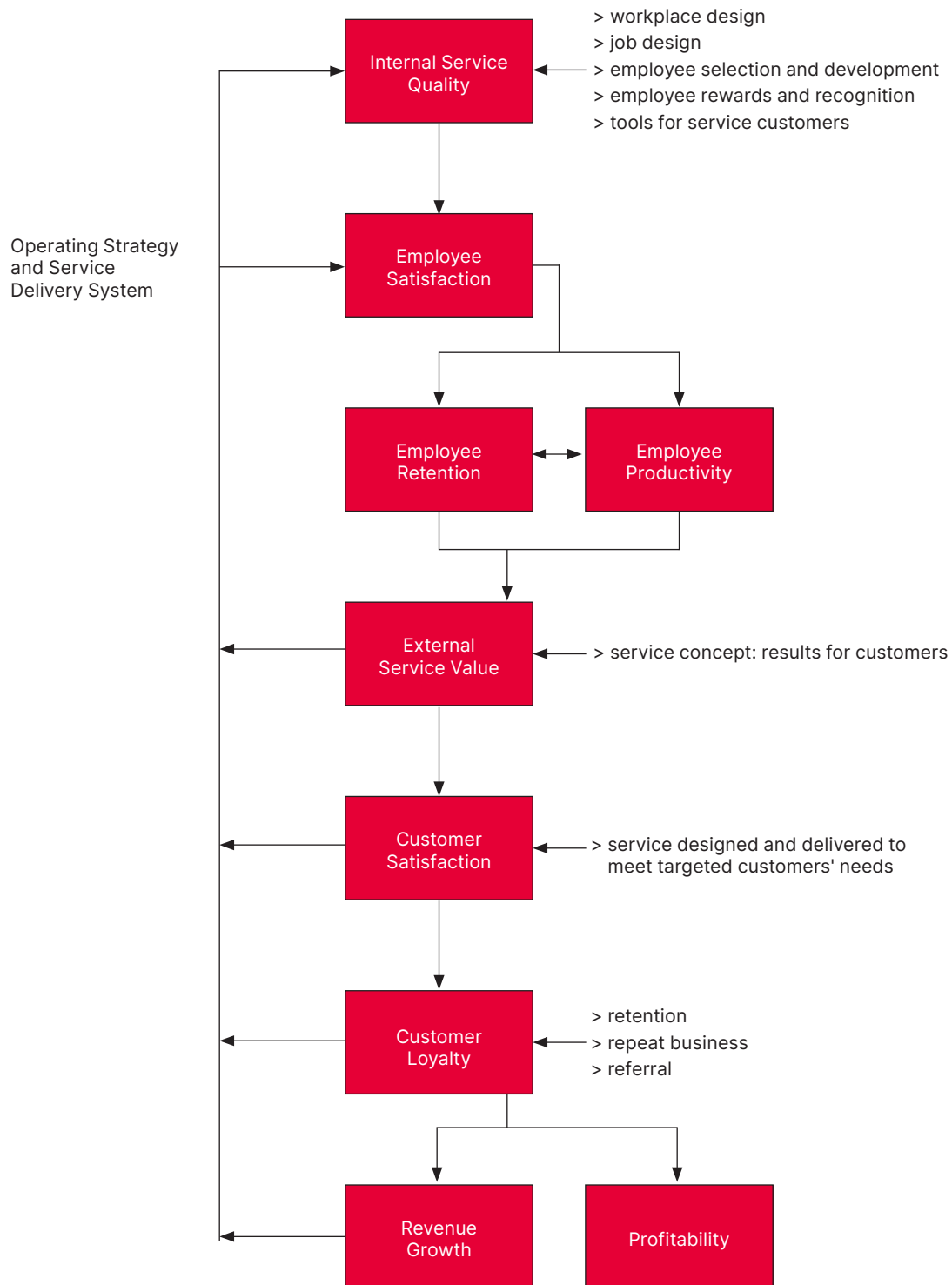
- > **Profit and growth are stimulated primarily by customer loyalty.**
- > **Loyalty is a direct result of customer satisfaction.**
- > **Satisfaction is largely influenced by the value of services provided to customers.**
- > **Value is created by satisfied, loyal, and productive employees.**
- > **Employee satisfaction, in turn, results primarily from high-quality support services and policies that enable employees to deliver results to customers.**

(See the exhibit "The Links in the Service-Profit Chain.")²³

23 Putting the Service-Profit Chain to Work, *Harvard Business Review*, Heskett, Sasser, Schlesinger, et al. 2008

FIGURE 5

THE LINKS IN THE SERVICE-PROFIT CHAIN



To reiterate: Giving your SSC employees—planners, operations managers, CSRs, and field-service technicians—the insight and tools they need to perform their tasks better is a key driver to employee satisfaction, which, in turn drives customer satisfaction, loyalty, and order-of-magnitude profitability gains.

How do you gain end-to-end visibility and control?

Getting a handle on the street-level metrics of every link is the key to creating a successful Service Supply Chain program.

One essential aspect is finding a way to capture and track the so-called “soft measures” of customer satisfaction, along with the myriad operations details of providing the right part to the right place at the right time:

Relating all the links in the service-profit chain may seem to be a tall order. But **profitability depends not only on placing hard values on soft measures but also on linking those individual measures together into a comprehensive service picture.** Service organizations need to quantify their investments in people—both customers and employees. The service-profit chain provides the framework for this critical task.²⁴

Putting AI/ML capabilities to work for SSC.

Within the Service Supply Chain, predictive technology can unlock many more options at every step in the process, including process mining, automation opportunities, product lifecycle management, circular logistics, and more.

One logistics software vendor (Chudovo) outlines 25 use cases where AI is having an impact on logistics/supply-chain operations.²⁵ These include:

- | | | |
|------------------------------|-----------------------------------|---------------------------------------|
| 1. Process Mining | 10. Last-mile delivery | 19. Order management |
| 2. Supply Chain Optimization | 11. Inventory management | 20. Real-time tracking and visibility |
| 3. Service Providers | 12. Quality control | 21. Autonomous vehicles and drones |
| 4. Process Automation | 13. Supplier risk management | 22. Robotic process automation |
| 5. Autonomous Vehicles | 14. Freight matching | 23. Predictive analytics |
| 6. Predictive maintenance | 15. Automated document processing | 24. Synthetic data generation |
| 7. Demand forecasting | 16. Carrier selection | 25. Fraud detection and prevention |
| 8. Warehouse management | 17. Energy optimization | |
| 9. Route optimization | 18. Sustainability tracking | |

24 Putting the Service-Profit Chain to Work, *Harvard Business Review*, Heskett, Sasser, Schlesinger, et al. 2008

25 <https://chudovo.com/the-future-of-logistics-and-supply-chain-industry/>

The benefits of a focused solution.

Service Supply Chain or aftermarket parts managers who have spent any time in forward supply chain (new products or CPGs) can attest to the significant differences in these two types of organizations.

Because of this, Service Supply Chain managers are right to be skeptical of solutions such as inventory planning modules from large ERP vendors that purport to be applicable to both types of organizations. Under these circumstances, SSC managers run the risk of missing out on essential capabilities or shortchanging the employees, driving customer satisfaction.

Of course, for larger organizations, robust interfaces are a must-have, but it is not wise to try and “shoe-horn” the needs of a service-parts organization into a “generalist”/ERP supply chain or inventory-management solution.

Other SSC solutions can be “purpose built” with the usual caveats of time, expense, and the risk of missing out on “best practices” developed based on years of SSC field experience.

Advocate for your Service Supply Chain Organization.

Armed with the customer loyalty information above, it will be easier to present a compelling case for further investment in the AI/ML-driven technology you need to succeed.

But be sure your supply chain needs don’t get lost in a broader effort. Organizations who have engaged with large systems integrators sometimes assume that those solutions will help SSC organizations, despite compelling evidence that they may not.

In fact, in a recent study on 25% of supply chain leaders feel their objectives are aligned with system integrator’s incentives.²⁶

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The widely diverse value of different customers.

One key area where internal organizations may diverge is in measuring the lifetime value of their customers.

Service parts/aftermarket managers know that not all customers (and SLAs) are equal, and they need technology that supports the ability to **individually address each** customer within an end-to-end platform.

How will you handle your “whales?”

The ability to instantly recognize a top-tier customer—and dynamically re-prioritize in order to always be working on your most important customer outcomes—is a characteristic of AI/ML-driven solutions. The importance of this type of differentiation can be illustrated with an example from the hospitality/gaming industry:

Big-money gamblers are known as “whales” in industry parlance, and at Caesar’s Palace there is an inviolable policy that “whales don’t wait in line.” If a whale enters the hotel lobby and there are other customers waiting at the front desk, the manager on duty will instantly open a new window to serve the whale.

Build a platform for success—or else...

The attraction of giant leaps in profitability are compelling, but what are the dangers of delaying improvements to your SSC organization’s technology platform?

Perhaps these findings from a recent poll of aftermarket part customers can provide some insight as to what’s at-stake:

**32% of all customers
would stop doing business
with a brand they loved
after one bad experience.**

In Latin America,
**49% say they’d walk
away from a brand
after one bad experience.²⁷**

In their 2015 book *What Great Service Leaders Know and Do* HBS Professors Heskett, Sasser, and Schlesinger reunited to explain that “great service leaders know that their customers buy results and value, not services or products. As a result, they focus on results and value for the right customers, as well as on the employee and customer value equations that produce them.”

In Chapter 3, the authors outline how these leaders create strategies that support this service vision and highlights the substantive differences of leaders who get it right vs. those who make half-hearted efforts:

One or two companies in an industry produce off-the-chart performance while changing the rules of the game by which competition occurs around the world. Each of these organizations exhibits a well-thought-out strategic service vision. You know these breakthrough service organizations when you see them, hear what their leaders have to say, and watch them act out their beliefs.²⁸

28 Heskett, James L., W. Earl Sasser, and Leonard A. Schlesinger. *What Great Service Leaders Know and Do: Creating Breakthroughs in Service Firms*. Oakland, CA: Berrett-Koehler Publishers, 2015.

CHAPTER FIVE

The astounding results of getting everything right.

It requires effort, investment, and dedication to introduce AI/ML-driven advancements into your Service Supply Chain organization. However according to virtually every major business analyst, the results are most certainly worth the cost.

In a 2021 report focused especially on AI-driven supply chain management, it was reported that: Successfully implementing AI-enabled supply chain management has allowed early adopters to improve logistics costs by 15 percent, inventory levels by 35 percent, and service levels by 65 percent, compared with slower-moving competitors.²⁹

As a partner with some of the world's top service organizations spanning industries from high-tech to energy, the team at Baxter Planning has already witnessed even greater bottom-line gains, including:

- > Significant savings in: inventory/carrying costs, delivery/expediting costs, etc.
- > Incredibly fast ROI—with 100% payback often coming in less than a year
- > Improved ability to service each relationship with the precise level of service it requires

The measurable difference between “Very Good” and “Excellent.”

In the 2008 article *Putting the Service-Profit Chain to Work*, the distinction of elite-performing service organizations was highlighted in the example of Xerox Corporation's customer satisfaction rating cards that allowed customers to rate their service experience from 1 to 5: The study showed that customers giving Xerox 5s were six times more likely to repurchase Xerox equipment than those giving 4s.³⁰

29 McKinsey—*Succeeding in the AI Supply-chain Revolution*, Alicke, Dilda, Görner, et al. 4/30/2021

30 *Putting the Service-Profit Chain to Work*, *Harvard Business Review*, Heskett, Sasser, Schlesinger, et al. 2008

SOME REAL-WORLD EXAMPLES OF SSC EXCELLENCE:

Global computer giant unlocks tens of millions in annual operational cost savings.

After an extensive vendor review, Baxter Planning's Predictive Service Supply Chain solution was selected to replace commercial and legacy IT systems—enabling the company to optimize, automate, and monitor their service parts inventory. This empowered them to dramatically reduce unnecessary inventory and logistics costs, while significantly improving customer service. Baxter's Predictive Service Supply Chain solution leverages Artificial Intelligence (AI) to automate service parts planning, operations, logistics, analytics, and customer escalation management across all the company's field services worldwide.

To meet tight two-hour part delivery agreements with its customers, the company currently manages over 350,000 parts and products valued at more than \$300 million in active inventory strategically dispersed throughout 74 countries. Baxter's Predictive Service Supply Chain solution is expected to help them reduce service execution and inventory costs by tens of millions of U.S. dollars annually. The company also believes the solution will help improve upon its already best-in-class customer net promoter score.

"Baxter's technology, expertise, and vision in automating and optimizing the entire Service Parts Management process became the clear choice for us," said the company's, VP of Service Supply Chain. "The platform from Baxter Planning will help us better serve our customers, reach our sustainability goals, and increase our supply chain resiliency," she added.

The Baxter Planning Predictive Service Supply Chain solution connects disparate workflows and teams with AI-enabled predictive insights that drive significant productivity gains, cost savings, and customer satisfaction. This new, predictive approach to inventory planning, demand forecasting, product lifecycle planning, operations workflow monitoring, reverse logistics, and customer escalation management unlocks significant new value for Service Supply Chain organizations.

Power of AI helps major electronics distributor intelligently determine when to “scramble the jets.”

The world’s largest electronics distributor prides itself on providing uncompromising service to its customers.

In a recent seminar to service parts planning managers, the company’s Director of Service Operations recalled past service recovery efforts that required “scrambling the jets” to pull out all the stops in meeting a customer demand—to sometimes find out that level of effort and expense wasn’t required.

“I remember a time we spent \$800—including a cab to the airport—to deliver a part in hours for a customer who later said they would have been perfectly satisfied with overnight delivery,” he explained.

In managing a widely prioritized variety of customers, this manager revealed, “There’s what I CAN do... and what I’m WILLING to do.” He went on to explain that understanding all the available options is an advantage delivered by Baxter’s platform, with AI adding critical data about costs, real-time conditions, and speed implications. Armed with this specific data, he can confidently provide his customers with precise options, complete with the pros and cons of each approach.

“With Baxter, I don’t have to scramble the jets 100% of the time,” he concluded.

EPILOGUE

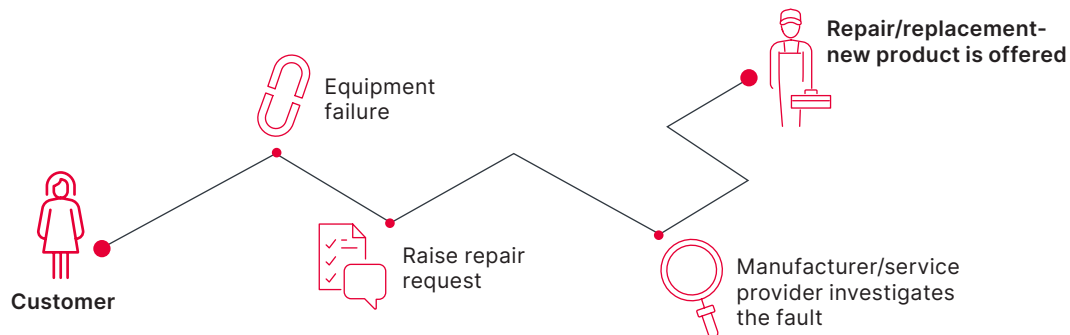
Be ready for the future of service!

Digitalization is enabling an evolution in the way organizations are thinking about the Service Supply Chain. Key to profiting from these AI/ML-driven advances, is the ability to visualize and control all the elements along the service parts journey.

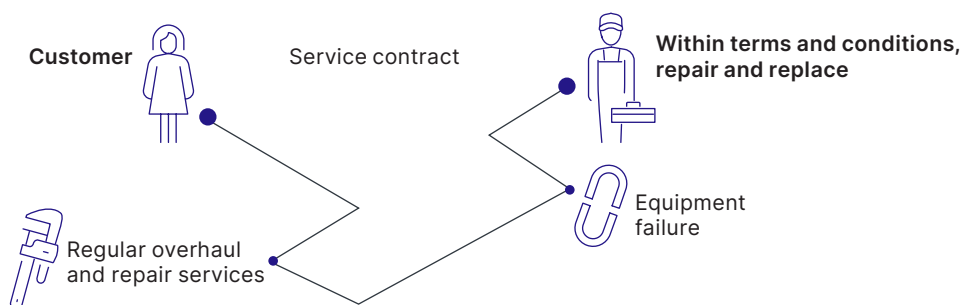
New models and opportunities are emerging, as outlined by business consultants like Deloitte who envision an ever-closer relationship between suppliers and customers:

FIGURE 6

YESTERDAY: Customers and manufacturers were at different ends of the chain



TODAY: Customers are closer to manufacturers



TOMORROW: Manufacturers are closed aligned with customers to aim for zero unplanned downtime

Customer experience:
> Product upgraded to avoid stoppage
> Better operations and outcomes

- > Real-time evaluation
- > Detect anomalies—provide prescriptive insights
- > Predictive insights based on performance data
- > Predictive insights on new ideas/solutions to evaluate performance

Customer has full transparency

Shares ownership of product

Selecting the right partner.

McKinsey reminds us that “...selecting the right solution is critical. To manage the complexity of today’s supply chain, new solutions need to be smartly designed and adapted to specific business cases. They also need to fit well with the organization’s strategy. This alignment enables companies to tackle key decision-making points with an adequate level of insight while avoiding unnecessary complexity. However, implementation can require significant time and investments in both technology and people—meaning the stakes are high to get it right.”³¹

For leaders in aftermarket/Service Supply Chain organizations, the difference that decades of experience in the industry can make should be compelling, along with a track-record of proven partnerships with other world-class service champions.

31 McKinsey—*Succeeding in the AI Supply-chain Revolution*, Alicke, Dilda, Görner, et al. 4/30/2021



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