The Tangible Value of S&OP

Five Key Financial Benefits of Sales and Operations Planning

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Projected benefits of best-in-class S&OP implementations:

- *14% increase in operating margin*
- *4% increase in gross margin dollars*
- *55% reduction in inventory write-offs*
- *17% increase in new product revenues*
- *35% reduction in lost sales*

S&OP project sponsors often struggle to articulate the tangible benefits of implementing a Sales and Operations Planning process within their organizations. This is not surprising, since most process redesign efforts present similar justification issues. This paper details five typical "value creation" opportunities enabled by S&OP. These benefits are based on actual outcomes resulting from numerous S&OP implementation and optimization efforts.

For the purpose of this discussion, value is defined as an improvement in revenue, profit, efficiency, or the reduction of waste, obsolescence, or working capital. There is no uniform way to quantify value, but most companies recognize a variety of financial measures, including internal rate of return (IRR), return on investment (ROI), economic value add (EVA), economic profit (EP), and earnings before interest, taxes, and depreciation (EBITDA). Expressing the potential value of S&OP in terms of these generally accepted accounting principles (GAAP) can help project leaders present a compelling case for process change; it also can help justify associated investments in training, consulting, and tools.

With all the recent industry buzz about S&OP, it's no surprise to find research groups projecting various baseline process improvement metrics. One group recently cited these benefits of best-in-class S&OP implementations:

- 14% increase in operating margin
- 4% increase in gross margin dollars
- 55% reduction in inventory write-offs
- 17% increase in new product revenues
- 35% reduction in lost sales

—Source: Aberdeen Research Group

When it comes to such rule-of-thumb statistics, questions always arise, such as "How realistic are the stats?" and "Can my business expect to realize the same results?"

Based on our hands-on experience, implementing S&OP processes for numerous world-class global corporations, the good news is, we can verify these findings from first-hand experience.

As to whether or not your business can realize the same results, the answer is a qualified maybe. That's because your potential for improvement is always predicated on your starting point. As to whether or not your business is poised to reap the rewards of S&OP, that's the question this paper proposes to address.

But First— Measuring Potential Benefits

At a recent conference hosted by the Institute of Business Forecasting (IBF), a speaker presented findings about the benefits of an S&OP implementation at his company. He displayed the results as a "live" calculation of the cost of inventory, based on an average item value of $35,000 (see **Figure 1**). The conclusion was obvious—reducing inventory hold had a dramatic positive impact on cash flow and profitability.

His company realized the inventory decrease by focusing its S&OP improvement efforts on reducing forecast error and thereby reducing inventory requirements. We found his analysis of the cost of inventory to be typical of a consumer products company. When this value model is extended beyond the carrying cost basis, the impact on an organization's financial performance becomes even more apparent (see **Figure 2**).

By using this simple financial model, most supply chain process improvements can be better understood and valued. Any effort that reduces costs, increases revenue, and reduces working capital—or fixed capital requirements—improves shareholder performance. Since the primary focus of S&OP is maximizing profit, this model is appropriate for our discussion.

Carrying Cost Facts/Education

Average Inventory Dollars	$35,000	
Investment		
- Cost of Money - Prime + 1		4.00%
Personnel Costs		
- Physical Inventory Taking	$367	1.05%
- Cost of Cycle Corrections	$309	0.88%
- Cost of Receiving	$594	1.70%
- Cost of Store Room	$1,010	2.89%
Receiving and Storage		
- Shrinkage	$850	2.43%
- Obsolescence	$401	1.15%
- Space Cost	$959	2.74%
- Insurance	$329	0.94%
- Taxes	$473	1.35%
- Utilities	$304	0.87%
GENERIC TEMPLATE		20%

FIGURE 1—THE COST OF INVENTORY *Just one example drawn from the real world.*

The Five S&OP Value Opportunities

There are five core areas where S&OP almost always adds value. The full measure of value to be realized is, of course, a function of both the current state and the opportunity. A precise determination of potential value requires a detailed assessment, but generally speaking, you can count on these:

Opportunity #1— Improved Forecast Accuracy

Collaborative forecasting, facilitated by an effective S&OP process, almost always yields improved forecast accuracy. And a key component of the S&OP process is the demand review meeting, during which stakeholders tackle the "heavy lifting" necessary to gain consensus on a single-number forecast.

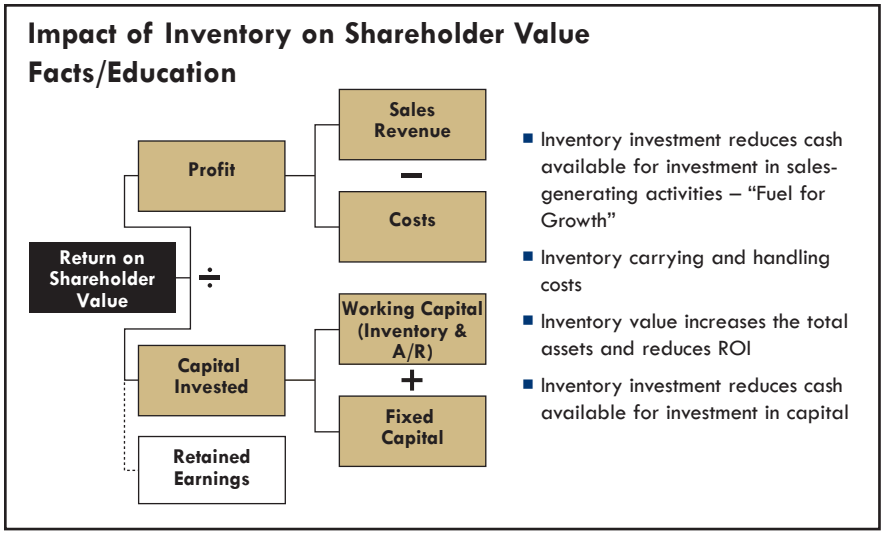

FIGURE 2—IMPACT OF INVENTORY…

The goal of the Demand Review meeting is to ensure the best quality forecast; however, sometimes the process can lead organizations to a bad answer—for the same reasons why the old cautionary tale warns of how a horse designed by committee may look like a camel. This happens when forecasts are based purely on "group think," without supporting assumptions or data, or when a forecast is nothing more than the budget.

There's an adage among S&OP practitioners: "You get what you settle for." And when it comes to agreeing upon a single-number forecast, there's no substitute for detailed measurements—including judgmental input—to validate forecast quality. Such metrics are essential to driving consensus forecasts toward excellence and reality.

A proper S&OP demand review meeting should examine the forecast metrics, deviations, and the assumption base behind a new demand plan. A good S&OP implementation will include demand planning best practices like forecasting by exception, demand signal recognition, gap measurement and resolution, and a continuous improvement process for both statistical and consensus forecast inputs and results.

The nature of the S&OP process is to make accuracy of the single-number forecast the focus measurement. It seeks to find problems in the demand plan and to enhance or develop processes that will improve future forecasting results.

Some of these results can be dramatic, for example, at a billion dollar beverage company; a twelve-fold reduction in MAPE (mean absolute percent error) was realized after implementing an S&OP process. The driver of this improvement was an obsessive effort to bring data, assumptions, facts, and plan deviations to the demand consensus discussion. This "fact base," coupled with key market and account insights, provided by the sales and marketing teams, resulted in a huge reduction in forecast error.

So where is the value? Forecasts ultimately drive all downstream supply planning. Improving forecast accuracy helps ensure "the right product, at the right place, at the right time." Excess inventory holds,

stock outs, obsolete inventory, transshipments between distribution points, customer service levels, and expedited shipments all tend to improve naturally when a business improves its forecast accuracy. There's also a cascade effect on safety stock pegging, financial forecasting, and capacity utilization.

Figure 3 illustrates how a reduction in forecast error at the consumer healthcare division of one large pharmaceutical company led to a corresponding reduction in inventory.

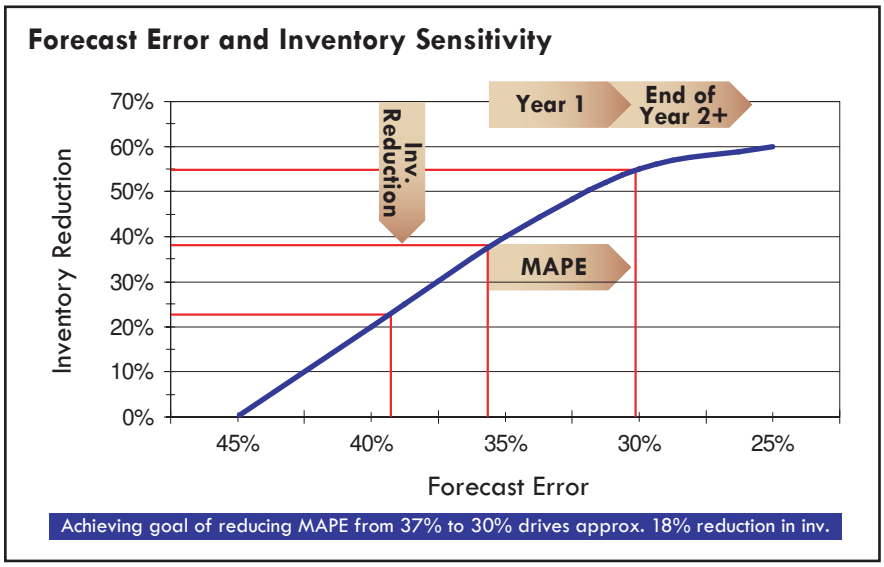

FIGURE 3—TANGIBLE RESULTS. *The consumer healthcare company found that a 7% reduction in forecast error led to an 18% reduction in inventory.*

Opportunity #2— Inventory Reduction

Better yet, consider this opportunity a chance to achieve *the right inventory*.

Inventory levels are normally determined by some equation of forward demand coverage, cycle time, customer service level, lead time, as well as supply and/or demand variability. S&OP enables reduction in inventory levels by reducing demand variability, improving forecast accuracy, building continuous improvement into the supply process (normally through metrics in a supply review), and accurately defining, then improving supply variability, production cycles and lead times. The process also helps determine key elements of inventory strategy, such as customer service levels and lot sizing, since these strategic components drive many inventory decisions. The S&OP process is centered on defining, measuring, and improving each of the variables in the inventory equation. The resulting calculations should, in theory, lead to a more accurate inventory projection. The S&OP process, through the supply review meeting, then monitors the execution of the inventory plan.

Getting inventory management math correct will yield about one-half to two-thirds of the desired result. Understanding and then changing the psychology of planning behaviors also helps to significantly reduce inventory.

The psychology isn't complex: sales planners want inventory immediately available to service customers and will typically hedge to the high side of a forecast. Supply planners, worried about being held accountable for out-of-stock conditions,

Regular examination of forecast bias and excess inventory is central to reducing forecast error and hedging.

also hedge to the upside of their inventory plans. In both cases, normal human behavior leads planners to inflate their numbers. The result is normally an overstatement of the forecast and an over-planning of supply—classic hedging behaviors that lead to excess inventory.

Effectively, the hedge is doubled because the forecast is overstated (to assure supply) and because supply discounts the value of the forecasting and hedges even more. Having a well thought out, well communicated, dependable demand plan with reality-based assumptions will eventually reduce hedging by supply. Having a reliable supply process that is well managed and focused on improvement will reduce the positive bias behaviors typical of a sales planning organization that wants to assure inventory availability. The net result of the diminished hedging behavior is normally a considerable reduction in inventory. Regular examination of forecast bias and excess inventory is central to reducing forecast error and hedging.

A detailed review of demand and supply measures, such as bias and excess inventory, occur within the context of S&OP demand and supply review meetings.

Of course the real value in reducing inventory is not in the reduction itself, but in the carrying costs of the inventory, as well as the money tied up in working capital. Reducing inventory frees up cash and reduces handling, storing, and the cost of capital expenses associated with the inventory. Assuming that the 20% holding cost figure expressed in **Figure 1** is correct (and we found the cost-of-capital estimate to be conservative), then there is tremendous opportunity to reduce logistics expense.

Having the right inventory at the right place at the right time saves a lot of money in other ways. Transshipments, expedited freight, inventory costs, and planning costs all go down as capacity is used more effectively. Production and logistics overtime costs often fall as well, as does the level of shrink and handling damage.

The benefits likely to arise from a well-managed inventory program are varied and within your reach. Tapping into the obvious (and hidden) costs of inventory is the best way to assess the potential true value of getting it right.

Opportunity #3—Reducing the Cost of Obsolete Inventory

Generally about half of obsolete inventory is linked to poor planning—demand, supply, or otherwise. Managers who use S&OP to reduce inventory obsolescence usually focus on getting the forecast and subsequent supply planning as accurate as possible so that "wrong" inventory is never created in the first

place. A typical result of this effort is a 50% reduction in the cost of obsolete inventory. That's because S&OP, through its demand and supply review meetings, helps business leaders create believable and executable plans. Reducing the remaining 50% of obsolete inventory costs, however, is less straightforward because the remaining value is derived in a number of ways, for example:

Too often, companies work throughout the year according to a one-size-fits-all inventory rule that perpetuates the production and "unplanned obsolescence" of slower moving items. The S&OP supply review meeting can be used to evaluate periods of slack capacity, during which lot size and minimum run rules might be reduced. A reduction in lot sizing, particularly for low-volume SKUs, can make a significant difference in "out of season" stock builds. The supply review process presents an opportunity to review this slow-moving inventory and soon-to-be-obsolete inventory—often called SLOB, for SLow-moving and OBsolete or E&O for Excess and Obsolete. The Supply Review can also help align discount and distress channel sales initiatives before products go code dates off.

Additional obsolescence reduction can be found by working a portfolio management process under the S&OP umbrella. The S&OP Portfolio Review meeting targets those SKUs that are soon to be discontinued, assuring that production runs as well as raw and pack buys are limited as the product life cycle for the SKU comes to an end. This same review also helps manage run outs, thereby handling the remnants of past SKUs. Run out management reduces the dollar risk of discontinuations.

The table below shows how the sources of obsolete inventory (and their measures) can be managed in S&OP step review meetings.

Source of Obsolete Inventory	*Review Meeting*	*Measures*
Inaccurate Forecasts	*Demand*	*Forecast Accuracy of High Obsolescence SKUs*
Inflated Production Plans or Execution	*Supply*	*Production Attainment, Excess Inventory*
Over Production of Low-Volume SKUs	*Supply/Portfolio*	*SLOB Inventory*
Over Ordering of Raw and Pack	*Supply*	*Deviation to Standard—Days of Supply vs. Lead Time Requirements*
Failure to Run Out Inventory	*Portfolio*	*Distressed Raw and Pack as % of Sales, Distressed Inventory*
Hedging Behaviors	*Demand*	*Bias Reporting on Forecast*
Hedging Behaviors	*Supply*	*SLOB Inventory—Calculated Inventory Requirements vs. Actual*

During an S&OP implementation at a confectionary company, total obsolescence was halved in Year 1 then halved again in Year 2 through an active focus on the root cause of each obsolescence instance.

Having the right inventory in the right place when needed by a customer prevents product substitution or trials of your competitors' goods.

Opportunity #4—Improved Customer Service/Revenue Generation

A core measure of the S&OP process is customer service. Customer service measurement and policies are important discussion elements in both the demand and supply review meetings within an S&OP cycle. Of course, measurement can and does change behavior, and just the focus alone on customer service is likely to yield improved results. However, the real improvement comes from precise demand planning, visible and well-managed inventory and production planning, and a focus on making what is needed to service a customer, instead of wasting resources due to hedging or poor planning.

There are many "flavors" of customer service measures: order fill, line fill, customer satisfaction survey results. Ultimately, customer service is about having the right inventory in the right place at the right time to meet customer demand. When demand is met, the result is properly planned and realized current and future revenue streams. When it comes to product, if you don't have it, you can't sell it. And if you can't sell it, someone else can. In today's business environment, it's easier and much less expensive to keep a customer by providing exceptional service than it is to acquire new customers.

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In our experience, customer service can be viewed a number of ways:

1. **Defensively**—When service issues can cause a loss of revenue—or worse, loss of market presence—due to delisting
2. **Offensively**—When customer service can be a differentiator in the marketplace
3. **As an input**—Into an inventory model
4. **As a measure**—Of supply chain execution or customer satisfaction
5. **As a result**—Of upstream execution.

Many companies reasonably consider customer service measures like line fill and order fill to be measures of customer satisfaction. But isn't customer service also a measure of future revenue generation? Is it fair to state that customer service failures, like "cuts," back orders, substitutions, and poor line fill levels impact current and future revenue streams? Most "customers" have little tolerance for prolonged delivery issues. What happens when enough unfilled order lines accumulate?

For example, does Wal-Mart care more about having 98% service levels or having product on the shelves to sell? Isn't Wal-Mart's requisite 98% service level really a means to an end, as opposed to the end itself?

The implementation of a simple S&OP process, enabled with demand and production planning software, improved customer service levels from 95% to 99.7%.

The simple answer is, Wal-Mart is in the business of selling product off its shelves, thus the company seeks to maximize the throughput of those shelves. If a product goes out of stock, the yield per shelf foot goes down. Revenue and profit decreases for Wal-Mart and the vendor. After enough shelf level outages, delisting becomes a definite possibility—and potentially a catastrophic loss of future revenue.

What is often missed is the impact of the customer service policy on inventory. Are all customers the same? Wal-Mart can be a demanding customer because of its size. But do you give Joe's Retail the same level of service as Wal-Mart? Does Joe's Retail provide the same profit opportunity? If not, it's counter-intuitive to give all customers the same blanket service policy. And if customer service levels are a multiplier in most safety stock calculations, why would someone carry excess inventory for low-volume/margin customers? Using S&OP to ferret out customer service policies just makes sense from an inventory pegging perspective.

While most companies view customer service defensively, some see the metric as a competitive differentiator and an offensive tool. Being "easy to do business with" and responsive can be a "go to market strategy." More often than not, high service level companies outperform their competitors. It's clear that, as companies continue to escalate the amount and type of supplier measurements, service levels will become that much more critical to sustaining a revenue stream.

In the subsidiary of a large petrochemical company, the implementation of a simple S&OP process, enabled with demand and production planning software, improved customer service levels from 95% to 99.7%. This small increase became a key competitive advantage, since no other competitor could surpass 95%. The result: sales increased 9% in a stagnant market.

S&OP can also enhance revenue by imbedding detailed market, channel, and consumer-trend detection in the demand and portfolio review processes. The ability to identify trends before they reach critical mass enables companies to become market leaders—or at least fast track follower—relative to emerging trends.

This level of market intelligence is an advanced form of demand signal recognition that is vital to companies that believe their commercial strategy should be focused on innovation. Revenue increases can arise from being the supplier that "sees" a trend first, and being agile enough to react. It's easier to defend market share than it is to get market share in the first place—that's why speed-to-market is increasingly important in a crowded competitive landscape.

Opportunity #5—Improved Portfolio Review/New Product Introductions

We spend a lot of time trying to convince our S&OP clients of the need for a portfolio review process. Portfolio review is defined as a separate step in the S&OP process, in which items undergoing life cycle changes are discussed. This includes new products, promotions, and discontinuations. This is also the process step where product portfolio strategies are discussed.

If you wonder why the benefits of a portfolio review process are so hard to envision, it's because the consumer marketplace continues to see huge leaps in new product introductions—to the point where, depending on the company, 15-40% of the SKU base is "turned" or increased in any given year. Most of these new SKUs fail, however, because of a poorly planned business case, a lack of sales and marketing execution, or supply-related issues. Managing product development—from ideation through commercialization, to launch, and then post launch—helps assure that the best success opportunities are developed. New product development is an investment in the future of your company—tracking performance helps expectations become reality.

The Portfolio Review meeting within the S&OP process tracks the progress of new products prelaunch, to enable "on time at launch." New products should hit the market when expected—particularly if media

We Want Wii

On November 19, 2006, Nintendo launched sales of its long-awaited Wii gaming console in North America, five days before the traditional post-Thanksgiving Day start of the U.S. holiday shopping season, and sales—like those of Tickle Me Elmo a decade before, and Cabbage Patch Kids before that—shot skyward.

As is typical in such scenarios, most stores reported selling their entire limited inventories literally hours before opening to anxious parents waiting in line. In following weeks, consumers monitored anticipated replenishments to big-box outlets and considered fallback alternatives, including paying inflated prices to Internet-based resellers. Some industry pundits blamed the shortage on international currency rates, claiming Nintendo diverted units from the U.S. to favor a subsequent European launch. The company's CEO cited hardware shortages and production bottlenecks for stock outs.

Regardless, the story of the Wii is illustrative. Tracking a product after its launch and sensing market signals is as important to the success of the product as is product development itself.

Unplanned demand *does* occur, and it can destroy a new product opportunity. A great product that stocks out is fine if it's a doll, but not so good if it's a new healthy sports drink, since trial and repeat is so vital in consumer businesses like food and beverage. If the product is not on the shelf during trial or repeat it is almost certain to fail.

The Lesson: Investment in design should be matched by investment in planning for new product introductions.

Failure to manage products undergoing life cycle changes leads to failed investments, high forecast error, lost revenue…and unmet plans.

and trade spending is being used to support the introduction.

The portfolio review process serves to challenge the aspirational nature of new product forecasts and business cases to ensure that forecast assumptions are detailed and well articulated. Once launched, the process looks for validation and acceptance of the new product offering. The post launch validation of the new product business case helps drive the new products into the market, per expectations, and creates believable, sustainable results around new product introductions in the future. Post launch validation may include metrics like point of sale data, order size, shipments, forecast consumption, scan analysis (IRI or Nielsen), and second order tracking.

Managing the promotions of mature items is becoming problematic. According to recent *Wall Street Journal* article, promotions are at an all-time high—with over 20% of SKUs at retail, on some sort of promotion, at any given time. And discontinued products continue to be a source of concern, as companies have a difficult time with SKUs exiting the marketplace without significant inventory risk. A fair estimate is that 20-50% of all SKUs are in some form of life cycle change at any time. With this in mind—why wouldn't companies spend more time getting demand and supply right?

In most consumer companies, the forecast error associated with products undergoing life cycle change is at least 50% of the net error. This also means that revenue assumptions associated with these products are off, and supply plans are impacted by the forecast error.

It should not be surprising that forecast error is the cause when obsolescence associated with transitional SKUs is disproportionately high. But who is typically to "blame"?

The entire organization!

Failure to manage products undergoing life cycle changes leads to failed investments, high forecast error, lost revenue, increased obsolescence, higher inventory carrying costs, and unmet plans.

Final Thoughts

The opportunities to derive real value from S&OP are real:

- Improved forecast accuracy
- Improved customer service
- Reduced obsolescence
- Not just reduced inventory—but the right inventory
- Improved new product introductions

Hopefully this "deep dive" into the mechanics behind each of these opportunities has been validated by your own experience.

In the wake of increased competitive spending, more consumer options, and other obstacles beyond your control, the ability to more tightly manage the things you can gives you greater ability to adjust and respond to the things you can't.

To learn more, contact the S&OP specialists at **Spinnaker**. Call **877.476.0576** or visit **www.spinnakermgmt.com**.

S&OP, if run properly, is not a fluff-filled process; in fact, its constant attention to performance measures can yield real, bottom-line results.

While the results of S&OP will always vary from business to business, the table below, drawn from a real-world example, illustrates some of the dramatic results possible.

With so many examples of the value derived from S&OP, the real question should be: How can your organization afford *not* to deploy S&OP? As consultants, we help clients develop and define a burning platform or compelling need. Do you have such a need to help justify S&OP?

Is your SKU count growing? Are promotional activities choking your supply chain? Are stakeholders pressing for more value, more cash flow, less inventory, and more productivity? Are you doing more with less? Are customers leaving you, delisting you, or getting chummy with your competitors?

Are you *reacting* all the time, and rarely planning? Are misses to your plan easy to identify in hindsight? Are you making your numbers?

If you answer yes to more than half these questions, then S&OP will add value to your business.

BONUS: Value Opportunity #6

S&OP is a process that helps provide real benefits...and it yields real results. The other real value of S&OP is that it builds a process that drives the cultural change of collaboration, adds accountability for performance against measurement, and fosters an atmosphere of improvement which over time will provide immeasurable value in good and tough times.

In the wake of increased competitive spending, more consumer options, and other obstacles beyond your control, the ability to more tightly manage the things you *can* gives you greater ability to adjust and respond to the things you *can't*.

Companies that can survive an onslaught of change have several things in common—discipline, focus, and the ability to grow from self examination. These are the core values of S&OP. *If your business can harness these values, you too can survive the onslaught!*

Measure	Before S&OP	After S&OP
New Product Forecast Error	1.2 million cases on 2.4MM volume	300K cases
Obsolete Inventory	$3M USD per year	800,000 USD per year
Transshipments	5% of shipment volume	>1% of shipment volume
Poorly Sourced Demand	25% diversions from "optimal" source site	5% diversions from optimal
Forecast Error (Measured SKU National)	12%	.69%
Order Fill	95%	99.7%
Inventory Expressed as Days of Supply (DOS)	45 DOS	27 DOS