

# Sage ERP

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## Inventory Optimization

Optimal Inventory = Lowest Inventory Costs + Highest Sales



sage

# Executive Overview

Even outside of distribution and manufacturing industries, inventory is the largest single asset that most companies need to maintain. Unfortunately, it consumes space, gets damaged, and sometimes becomes obsolete or expires, and carrying surplus inventory unnecessarily costs the organization. However, it is not a matter of simple not keeping inventory on hand; inventory management is a balancing act between inventory cost, service levels, and sales. Reaching optimal inventory measurements means achieving the lowest possible cost of inventory processing and the highest possible perfect fulfillment of sales. More inventories can help you capture more sales, but it comes at a significant cost. On the other hand, lowering inventory reduces costs, but it could impact sales if inventory is not on hand for quick repairs, services, or shipping—and possibly impact customer retention. The ultimate question is, “What is the right service level to have the lowest amount of inventory while capturing the most sales?” The answer has a big impact on your bottom line, but unfortunately the answer is not always a few simple process changes. This white paper explores inventory management drivers and metrics that can help you achieve performance excellence and optimal inventory.

## Benefits of Inventory Optimization

“Gotta get leaner!” is the mantra of inventory and operations managers across the globe. And the only way to do that is to get a tighter grip on your inventory at every stage of the supply chain—from procurement through production to shipping. Inventory optimization techniques can help you:

- **Boost Profitability:** Gain real-time insight into inventory levels, order status, and ownership to enhance customer satisfaction, expand quality initiatives, and improve performance throughout the sales process.
- **Lower Costs:** Realize the potential for a significant increase in labor productivity, lower operating costs, near-perfect order fulfillment, and reduced inventory levels in the warehouse—which can help make your business more competitive.
- **Improve Quality:** Getting things right the first time drives quality excellence and reduces your inventory investment—by avoiding unnecessary reorders caused by inaccurate knowledge of what’s already on hand. Improve performance through the use of data, information, and knowledge to understand variability and to improve strategic and operational decision making.
- **Focus on Continuous Performance Improvement:** Better performance using benchmarking and best practices, as you measure the right metrics to achieve your corporate objectives.
- **Offer Competitive Guarantees:** With a better understanding of your inventory, you can offer lowest price or fastest shipping guarantees. Understand what markets and customers value, now and into the future, and use this to drive organizational design, strategy, products, and services.

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# The Ultimate Goal of Inventory Optimization

Inventory is the largest single asset that most companies need to manage. Unfortunately, it consumes space, gets damaged, and sometimes becomes obsolete or expires, and carrying surplus inventory unnecessarily costs the organization. Inventory needs to be purchased, stored, and maintained and ties up cash. This working capital can be a significant burden for many companies and if freed up can provide significant cash resources that can be used to pursue revenue-generating opportunities and strategic investments.

The well-documented benefits of running a manufacturing, distribution, service, or retail operation with leaner inventory range from a permanent reduction in working capital to higher productivity to better customer service levels. As Forrester Research pointed out in a recent report, the ability to increase inventory turns is a key differentiator between highly successful and more poorly performing companies (for example Wal-Mart vs. Kmart; Dell vs. Compaq).

However, according to Aberdeen, if the inventory owner decides to reduce the inventory in isolation based on some fuzzy logic which might be the best, keeping in mind different demand variations and patterns, it is highly likely that it will impact the objectives of other business functions negatively and the whole purpose will be lost. But if the focus is inventory optimization in such a way that there is a trade-off between service levels and inventory level, production efficiency and order fill rate, and so on, only then can we see it as a real win-win situation where organization as a whole, can gain substantially.

It is not that compromise between different business functions is the only way to optimize inventory. True inventory optimization is about “right sizing.” It’s a balancing act between inventory reduction and service levels. The ultimate objective is to have the right products in the right place at the right time to maximize revenue, while controlling costs.

## Inventory Optimization Drivers

It is important to address the cross-functional interests by discussing and finalizing service levels, production efficiency, and other key performance indicators along with the inventory levels so that all business functions work as a team on one strategy and with same objectives in mind. We will discuss some benchmarking and best practices later in this paper; however, there are drivers that can help you achieve optimized inventory, such as:

- Sales & Operations Planning (S&OP).
- Inventory Management.
- Demand Planning and Forecast Accuracy.
- Vendor Management and Supplier Lead Times.

### Aberdeen Group’s Three Rules of Inventory Management

Three simple rules capture the essence of inventory management:

- Rule 1: Always have enough!
- Rule 2: Never have too much!
- Rule 3: Never let Rule 2 overrule Rule 1!

## Sales and Operations Planning (S&OP)

Many companies attempt to optimize inventory and create the most “efficient” supply chain, regardless of their market and corporate strategy. As we have discussed, optimizing cost and inventory may come at the expense of lead times, services levels, and customer satisfaction. Supply chains cannot be measured in obscure terms like “efficiency” or optimized in isolation of the corporate strategy. Sales and product strategy are critical in “right sizing” inventory optimization for your business. Combining demand planning and sales and operations planning into an integrated approach means executives spend less time reacting to problems and more time managing opportunities. Key questions to ask, in order to tie your supply chain strategy to corporate goals and annual plans:

- What part of our core competence and competitive differentiation falls within or can be derived from my supply chain activity?
- How can we align our sales processes, revenue, and incentives to supply chain strategies?
- What metrics will we utilize to measure supply chain improvements, and how can we tie them to sales metrics?
- Which departments should be involved in implementing S&OP strategies?

## Inventory Management

Inventory management is obviously the key driver of inventory optimization. In simple terms, inventory management is all about knowing what is on hand, where it is, and efficiently overseeing the constant flow of units into and out of existing inventory. This process usually involves preventing the inventory from becoming too high or dwindling to levels that could put the operation of the company into jeopardy. Competent inventory management also seeks to control the costs associated with the inventory, both from the perspective of the total value of the goods included and the tax burden generated by the cumulative value of the inventory. Balancing the various tasks of inventory management means paying attention to these key aspects of any inventory: accuracy, lead times, inventory turns, and return policies. Key questions to explore:

- How can I reduce my ongoing inventory requirements without causing costly disruptions?
- How can I use lean, agile, or just-in-time methodologies or practices like vendor-managed inventory or supplier-managed inventory to reduce costs without impeding our responsiveness?
- What are best-in-class inventory days and turns?
- What key performance indicators should I be tracking?

## Inventory Accuracy

Accurately maintaining figures on finished goods inventory makes it possible to quickly convey information to sales personnel as to what is available and ready for shipment at any given time. Effective Inventory management requires keeping accurate records of raw materials, as well as goods that are ready for shipment. If you are optimizing something, you need to know the exact picture, so you need to make sure that the physical inventory matches the inventory in your system, as all the calculations on service levels, order fill rate, and so on will be based on it only.

According to AMR Research, 80% of a company's supply chain costs, including inventory planning and deployment, are captive in the strategic planning phase of supply chain optimization.

## Lead Times

Inventory management is not limited to documenting the delivery of raw materials and the movement of those materials into operational process. The movement of those materials as they go through the various stages of the operation is also important. Typically known as work-in-progress inventory—tracking materials through the procurement and/or production process helps to identify the need to adjust ordering amounts before the raw materials inventory gets dangerously low or is inflated to an unfavorable level. It is important to understand how long it takes for a supplier to process an order and execute a delivery. In addition, inventory management demands a solid understanding of how long it will for you to deliver a product to your customer. Knowing these two important lead times makes it possible to keep your supply chain running effectively.

## Inventory Transfers

The number of times you sell and replenish your inventory in a given period increases your working capital and lessens inventory obsolescence. The inventory carrying cost will reduce as a result, which is a key KPI of inventory optimization. An analysis of inventory movement across warehouses might tell you that there is inventory in warehouses with no demand for them over the last six months and very low forecast in next six months. Analyzing and transferring slow-moving or dead inventory from one warehouse to another where it can be consumed faster will optimize inventory levels considerably.

## Returns Policies

Many companies forget to factor in return policies into inventory management. Many times field engineers get the inventory (mostly service parts) issued from warehouse to service customers, and at least 40% of the time all issued parts are not consumed at the location. These parts are either kept at the customer location or in the service van of the field engineer and either become obsolete/expire or are not visible at all for supplying against other demands. This results in duplicate buying and hence more inventory than required. In addition, returns from customers can also sit on the shelf versus being verified and returned to inventory. A proper process around this can not only ensure lesser inventory but will also reduce scrap (obsolete) inventory.

## Demand Planning and Forecast Accuracy

Demand planning and forecasting are a set of business processes that involve predicting future demand and aligning procurement, production, and distribution capabilities to meet that forecast. Involving a number of different business functions, this requires the sharing of timely data, the accurate processing of that data, and agreement on joint business plans, as defined in the S&OP. Accurate and timely demand and forecast plans are one of the most important components of an effective supply chain and inventory optimization.

Best practices in delivering real-time demand-led supply chains require collaboration, flexibility in responsiveness, and robust cross-functional business planning. Companies must take a more systematic approach to demand planning and forecasting and strive for deeper collaborative supply

According to Dr. Hau Lee, the Thoma professor of operations, information and technology, at the Stanford Graduate School of Business, companies that have a sustained competitive advantage have supply chains that are not just low-cost and high-speed, but, most importantly, they also have the characteristics of “Triple-A Supply Chain” a term coined by Dr. Lee, including:

- **Agility.** They are designed to respond quickly to sudden changes in supply or demand.
- **Adaptability.** They are built to evolve over time as markets are reshaped by such forces as economic growth and contraction, political shifts, demographic trends, and technological advances.
- **Alignment.** They are envisioned to ally the interests of all participants in the supply chain with their own. As each partner maximizes his own interests, the supply chain's performance is optimized, as well.

chain practices—both within organizations and with trading partners. Developing collaborative supply chain practices will drive demand planning accuracy, which in turn optimizes service levels, while reducing inventory. Depending upon the size of your inventory, this can be achieved through inventory management techniques and reporting or with specialized tools that encourage supply chain visibility. Key questions to explore are:

- How can I more accurately predict upcoming shifts in demand?
- How can forecast governance help me reduce biases and errors?
- How can I reduce data latency to support real-time decision making?

## Vendor Management and Supplier Lead Times

Sourcing and procurement excellence means faster replenishment and less time an inventory will stay in the warehouse. This also means that you will be able to keep lower safety stock levels and thus reduce overall inventory. By reducing your acquisition lead times for either manufactured or purchased product, whether supplier lead time, transportation time, or receiving cycle time, you can reduce safety stock inventory for a given customer service level. Strategically managing the performance of your vendors can control lead-time variability. Key questions to address:

- How do I get more value out of my supplier relationships?
- How can sourcing and procurement drive competitive advantage?
- What regulatory trends will impact my global sourcing strategy?
- Could vendor-managed inventory or supplier-managed inventory for some products help reduce costs without impeding our responsiveness?

## Measuring Success: Benchmarking and Key Performance Indicators

Business Intelligence and reviewing performance results with cross-functional work teams are the foundation of continuous performance improvement. It is important to link your inventory optimization strategies to critical success factors based on your corporate goals and strategy and then to the development of a set of key performance indicators (KPIs) that will:

- Measure progress towards the business strategy.
- Measure key inventory metrics (as defined here).
- Provide visibility for all levels of the business as to their contribution to the strategy.

## Inventory Turns

Inventory turnover ratio measures the velocity of conversion of stock into sales. The inventory turnover ratio is also an index of profitability, where a high ratio signifies more profit; a low ratio signifies low profit. Usually a high inventory turnover/stock velocity indicates efficient management of

According to a recent report from Boston-based AMR Research Inc., companies that excel in supply-chain operations perform better in almost every financial measure of success. Where supply-chain excellence improves demand-forecast accuracy, companies have a 5% higher profit margin, 15% less inventory, up to 17% stronger “perfect order” ratings, and 35% shorter cash-to-cash cycle times than their peers. Companies with higher perfect-order performance have higher earnings per share, a better return on assets, and higher profit margins—roughly 1% higher for every three percentage point improvement in perfect orders.

“The basis of competition for winning companies in today’s economy is supply-chain superiority,” says Kevin O’Marah, vice president of research at AMR Research. “These companies understand that value-chain performance translates to productivity and market-share leadership. They also understand that supply-chain leadership means more than just low costs and efficiency—it requires a superior ability to shape and respond to shifts in demand with innovative products and services.”  
*AMR Research Inc. <http://www.amrresearch.com>*

inventory because the more frequently the stock is sold, the lesser amount of money is required to finance the inventory. A low inventory turnover ratio indicates an inefficient management of inventory. A low inventory turnover implies overinvestment in inventory, dull business, poor quality of goods, stock accumulation, and slow-moving goods and low profits as compared to total investment. If you can increase the speed and efficiency of handling your merchandise, your cash flow and profit will skyrocket! This is due to receiving a higher return on your investment and lesser associated inventory carrying costs.

Best Practice: According to a 2012 Aberdeen Group Inventory Optimization report, best-in-class companies averaged 15.1 turns per year; however, there is no rule of thumb or standard for interpreting the inventory turnover ratio. The norms may be different for different businesses depending upon the nature of industry and business conditions. The study of the comparative or trend analysis of inventory turnover is what is useful for financial analysis.

*Imagine doubling your inventory turnover rate (certainly not far-fetched with proper control): You could sell product at half the normal margin and still gross the same amount of dollars in a given time period.*

## Cost of Goods Sold (CoGs)

$$\text{CoGs} = \text{Beginning Inventory} + \text{Inventory Purchases} - \text{End Inventory}$$

The Cost of Goods Sold typically is the largest single expense for most companies, so this figure is extremely important. This figure alone is not really of much value, as it needs to be compared to other financial figures, such as Net Sales or Inventories. An especially good sign for a company is if the Net Sales is increasing over time, and the Cost of Goods Sold is not increasing as much, staying the same, or the best case—going down! This could mean that while its sales income is increasing, it is able to manage its costs associated with selling those goods or services.

## Gross Margin (GM%)

Gross margin (sales minus direct costs) is what is left over after costs associated directly with the sale of a product or service, such as materials and direct labor, are paid. A high gross profit margin ratio indicates that a business can make a reasonable profit on sales, as long as overheads do not increase. Investors pay attention to the gross profit margin ratio because it tells them how efficient your business is compared to competitors. It is sensible to track gross profit margin ratios over a number of years to see if company earnings are consistent, growing, or declining. Knowing your gross profit margin ratio is important because it tells you whether your business is pricing goods and services effectively. A low margin compared to your competitors would suggest you are underpricing, while a high margin might indicate overpricing. When a firm is generating adequate sales but gross margins are low, it signals an issue in one or both of these areas.

Best Practice: Typical gross profit margins vary significantly by industry and type of business. Gross profit margins in the pharmaceutical industry typically range from 50 to 100 percent, and in the textile manufacturing industry margins average around 40 to 45 percent, but most major retailers only have a gross profit margin in the 20 to 30 percent range.

## Carrying Costs and Inventory Levels

Carrying Cost = Inventory Carrying Rate x Average Inventory Value

This is the cost a business incurs over a certain period of time, to hold and maintain inventory levels. Businesses use this figure to help them determine how much profit can be made on current inventory. It also helps them find out if there is a need to produce more or less in order to keep up with expenses or maintain the same income stream. Carrying cost of inventory is often described as a percentage of the inventory value. This percentage could include taxes, employee costs, depreciation, insurance, cost to keep items in storage, opportunity cost, insurance costs and replacing items, and cost of capital that help produce income for a business.

Best Practice: The standard “rule of thumb” for inventory carrying cost is 25% of inventory value on hand.

## Perfect Order

Perfect Order = Order Entry Accuracy x Warehouse Pick Accuracy x Delivered on Time x Shipped Without Damage x Invoiced Correctly

“Better, faster, and cheaper” just isn’t good enough anymore; customers today are demanding perfect orders, shipped and delivered on time to the minute, at a cost that barely leaves any margin for error—or profit. Perfect Order is more than simply measuring your percent of Orders Shipped on time. What really matters in today’s consumer-driven economy is, “Did the customer get what they want, when they wanted it, how they wanted it?” By definition a Perfect Order is achieved when a customer can contact your organization, place an order for a product in a timely manner, have the product available when they want it, at the price they are willing to pay, have it delivered when they want it without damage, and be able to pay the invoice without any problems. These actions transcend every aspect of your organization. The customer service, production, inventory management, distribution, and finance functions all must be working together to allow your organization to reach Perfect Order status each and every time. Perfect Order measurement truly captures what is happening in your business and how satisfied your customers are with your order delivery performance, which is critical for continuous improvement in customer service.

Best Practice: Best-in-class companies increased their perfect order rates by 3.1%.

## How Technology Can Help

According to Aberdeen’s Inventory Optimization study, not only does inventory optimization drive better overall business results, it also drives better services as well, as shown by the Best-in-Class in Aberdeen’s study. Aberdeen recommends that organizations concentrate on process capabilities as areas for improvement and possible investment, including:

- Ability to view end-to-end inventory while providing available-to-promise dates and making commitments.
- Ability to respond quickly to market events while executing to inventory requirements.

- Measurement of customer service levels during the planning phase.
- Measurement of customer service levels during the execution phase.
- Ability to create more accurate forecasts at the SKU level.

Inventory Management software can help you with the above process improvements by providing easily accessible information, so you can make better business decisions about what merchandise to stock, how to price it, what to discontinue, and follow trends to determine what to market. As processes are automated, all information for profitability planning and product trend analysis is readily available. Your operations will be significantly more efficient, helping boost profits, and customer service will improve dramatically, too.

## Why Choose Sage?

You want an enterprise resource planning (ERP) solution that works the way you do. That's why you need a provider that delivers the proven experience, extensive product selection, and far-reaching network of support to increase efficiency into every area of your business. Only Sage ERP provides all three.

For over 30 years Sage has been helping businesses like yours achieve their goals by offering cost-effective, end-to-end solutions that are simple to use and span the diverse needs of midsized businesses across virtually every industry. That's because Sage ERP solutions work exactly the way you need them to. We offer one of the largest selections of scalable, integrated ERP software solutions available, and our extensive global network of 40,000 accountants and 26,000 business partners provide you with industry expertise and on-site support to help you select, plan, and implement the ideal mix of solutions to run your business your way. No matter what industry you specialize in, our highly experienced team provides you with the insight you need to succeed today and well into the future.

We make ERP work for you.

## Sage

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