The Complete Guide to Supply Chain Optimization
Introduction

The beginning of the COVID-19 global pandemic caused many issues related to manufacturing, including temporary facility shutdowns and labor shortages, and supply chains across the world are still experiencing constraints from raw material and worker shortages.

Some are calling the current period The Great Supply Chain Disruption, which is characterized by the difficulty in restarting the global manufacturing machine after the lockdown of 2020. This includes the following problems:

The complex logistics system that moved materials and finished goods and products requires predictability and precision, and the industry currently has neither.

The shipping container shortage has caused increased shipping rates and congestion at international ports, which causes a ripple effect to railroads and the trucking industry, exacerbating an existing shortage.

The delays experienced by importers in receiving key components and the challenge of accessing the shipping containers has prolonged or halted the process of booking shipping vessels.
These issues are not specific to one branch of the manufacturing industry, either. The pressures the industry faces not only limit company growth, but also underserve the increasing demands of global customers within the supply chain.

Some experts claim that the chain has broken and the effects will be felt for years to come. While the current reality is intimidating, we see this as an opportunity for companies in the manufacturing industry to double down on their supply chain optimization efforts — whether that be by reducing costs, eliminating risk or streamlining project timelines — to ensure greater profitability of their organization.

This guide will serve as a resource to help manufacturing companies take a critical look at their supply chains and offer strategies and ideas for them to either improve, refine or optimize their processes for greater efficiency in the supply chain.
What Is Supply Chain Optimization?

Supply chain optimization is a set of practices and procedures that aim to ensure the optimal operation of a manufacturing and distribution operation. To operate at peak efficiency, supply chain management identifies key performance indicators (KPIs) that include total operating expenses and gross margin return on inventory invested.

Ultimately, the goal for any company within the supply chain — whether they are raw material suppliers, component manufacturers or retailers — is to deliver products to customers at the lowest total cost while maintaining the highest level of profit.

In order to accomplish these goals, managers must balance the costs of manufacturing, transportation, inventory, fulfillment and customer service expectations. Managers can do this through supply chain optimization by:

- Reducing costs in transportation, inventory and manufacturing
- Maximizing gross margin return on inventory invested
- Maximizing gross profits of products distributed through the supply chain

Although categorizing the areas of optimization is simple enough, the complexity involved in supply chain optimization should be approached as if one is running a marathon, not a sprint. In part, this is because cost and service needs change over time due to fluctuations in material costs, carrier services, customer demographics or other factors that require continuous monitoring.

What triggers supply chain optimization?

Supply chain optimization is often considered by companies when a significant event takes place, such as a merger or acquisition, financial concerns or a global pandemic, as has been the case in the last few years. This might look like rising transportation costs or low capacity capacity for container shipping systems.
Supply chain optimization might also be required as new branches of the supply chains grow. For example, the demand for e-commerce led some companies to abandon direct-sales capabilities without integrating into new channels, which led to higher costs and unorganized management.

**How does supply chain optimization start?**

The primary approach has been to forecast future inventory demand as accurately as possible based on historic demand and predicted future activity. Typically, the process for supply chain optimization begins with the following:

- A thorough analysis of the current forecast demand
- The development of a production and an inventory plan to closely meet the forecast
- An analysis including inbound raw materials or components, manufacturing processes, logistics of transportation and distribution

In many cases, manufacturing companies will partner with procurement and supply chain consultants, as well as any service providers, to design the optimization process. Nowadays, a heavy focus lies on the implementation of useful technology and organizational changes to the business processes. The entire process ensures that the forecast is accomplished as closely as possible so that the company not only survives but also thrives in ways that exceed previous years.
What Are the Most Significant Challenges Associated With Supply Chain Management?

To meet the new demands and challenges of the supply chain, supply chain management needs to establish a plan that ensures operations run smoothly while remaining adaptable in the case that unexpected circumstances arise.

The combination of routes to market, international complexities and consumer expectations create significant challenges to the supply chain network. There are many potential supply chain challenges, but here are the main changes to prepare for.

**Increased costs throughout the supply chain**

Cost fluctuation is a basic principle of economics. This reality often puts profit margins under pressure when costs increase throughout the supply chain network. These costs can come from many areas and at different times. A lack of visibility and accountability into the approaches to cost reduction can result in an increase in operational expenses.

The major contributors to overall cost increase include:

- Fuel costs to transport components and products by air, sea or road
- Raw material cost raising commodity prices and vice versa
- Labor costs from manufacturers and suppliers
- Logistics complexities that cause higher charges for storage, transportation and product management
Supply chain complexity due to markets with multiple channels

Consumers purchase products from a number of different channels, or sellers, which increase the routes to market. To adapt to this increase, supply chain managers need to create adaptations of their existing supply chain processes to address the following channels:

For **e-commerce websites** that sell directly to consumers, a fast, last-mile delivery and local logistics plan is required.

Combined with accurate inventory assessments to ensure product availability, **traditional retailers and wholesalers** require large storage locations that are in close proximity to major metropolitan areas.

**Third-party marketplaces**, such as Amazon, require strong strategies surrounding fulfillment options and close compliance with stricter terms and conditions.

**Drop shipping retail**, which is a fulfillment method in which the retailer purchases the product from a third party as soon as it is purchased from a customer, requires incredibly fast international services so that the product is received quickly.

Regardless of the industry, supply chain managers must manage multiple supply chains and third-party organizations to ensure the customer has a good purchasing experience.
Consumer demand that drives the need for improved speed, quality and service

In some of the most severe situations, caused by both the natural disaster and lack of preparedness, a supply chain can come to a complete standstill. This situation creates a ripple effect that impacts businesses’ ability to procure and deliver supplies, which ultimately negatively affects the consumer.

- Customers are expecting faster delivery for online goods and immediacy with retail goods.
- Consumers demand convenient access to higher-quality products.
- Raw materials, finished products and goods need to meet safety standards and compliance regulation mandated by law.
- Environmental, social and governance (ESG) concerns are becoming more important to ethically aware consumers.

Naturally occurring risks

There are many instances throughout history in which natural disasters have disrupted the supply chain. Whether a company faces a hurricane, blizzard or tsunami, a natural disaster will disrupt global supply chains through paused or postponed deliveries, closed ports, canceled cargo flights and time-consuming recovery.

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The impact of volatility on supply chains

Volatility and complexity have the potential to affect an entire supply chain infrastructure. Dealing with these issues promptly can help avoid delays, backlogs, bottlenecks and other issues.

Here are the most common examples of volatility on the supply chain:

**Political circumstances** can introduce tariffs across trade routes that establish additional fees and increase customs processing times, causing delays in the international shipping process. A recent example is the Trump administration’s tariff increase on a broad range of products from China.

**Increasing volumes of international goods** drive up port congestion. Often, when ships must wait to load or unload products, port authorities charge organizations to store goods at the port.

**A shortage of long-haul drivers** creates transportation delays in trucking capacity, which puts pressure on drivers and makes the profession less attractive.

These problems are considered endemic in the supply chain. While they are nearly impossible to resolve on the organizational level, supply chain management needs to understand issues that impact the supply chain on a global scale and respond with strong management and reporting and predicting capabilities to resolve issues quickly.
What Are the Benefits of Supply Chain Optimization?

With the right design, planning and execution, supply chain optimization can create a smoother process and more successful business model that focuses on efficiency and profit as well as the following benefits.

**Improved inventory management**

Inventory holding costs are significant elements for suppliers and manufacturers. Having an efficient inventory management system allows companies to identify best-selling and slow-selling products and components. This might influence purchasing decisions of raw materials as well.

Inventory management also helps with deciding which items in the inventory should be kept where they can be accessed quickly and which can be stored in a warehouse in a different location to cut down on transportation costs.

**Faster lead times**

Suppliers, manufacturers, distributors and retailers alike have goals aligned with their business strategy to ensure timely delivery. Faster lead times connect to other aspects of manufacturing, such as quality assurance, testing, efficiency and safety of the manufacturing process. Faster lead times also connect to important goals of supply chain optimization, including reducing shipping costs, improving customer satisfaction and increasing revenue and profits.
Customer satisfaction and retention

In a customer-centric, service-oriented world, nearly every company functions on a subscription model rather than a one-off sales model. With this approach, a company needs to consistently and continuously provide the advantage of working with them and choosing their product or service. This means the following:

- Shippers focus on the retailer or organization from which the consumer purchases the product.
- Logistics providers focus on the shipper and the shipper’s customer.
- OEM suppliers focus on high-quality components for product manufacturing.

By improving their overall processes, companies can improve customer satisfaction and gain a larger market share.

Overall operational efficiency is a key aspect of supply chain optimization. The supply chain is essentially a domino effect: When one link in the organization is optimized, the supply chain network will feel the effects of the previous links.

For example, implementing risk management strategies for a commodity manager provides strategies for supply procurement diversity, which can mean higher lead times and a lower cost of materials and components.

Revenue and profit growth

One way to increase revenue is through eliminating inefficiencies, particularly waste, which can accrue through poor manufacturing practices that could produce useless components. Reducing waste can also apply to the cost of delivery and operations. For example, companies can decrease the number of drivers that perform deliveries or the number of trucks rolled out.

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5 Strategies to Optimize the Supply Chain

While all companies involved in a supply chain have areas that need to be optimized, there is no single playbook that ensures success in the incredibly dynamic global market. Here are five tips that manufacturing enterprises should consider.

1. Develop a Plus One strategy or supply chain diversification

The “China Plus One” strategy is used by multinational firms that seek to find diversity in the supply chain by moving to other countries in addition to China. Some countries in Southeast Asia — such as Vietnam, Malaysia and Thailand — have become attractive to manufacturers because these countries are witnessing economic growth and have a workforce, political stability and infrastructure.
Vietnam has been a key part of this strategy in part due to its close proximity to China. The country also has a 2030 master plan that aims to improve its transportation infrastructure by constructing 5,000 kilometers of expressways, a deep-water port and high-speed rail routes in addition to completing Long Thanh International Airport near Ho Chi Minh City.

Malaysia has received an increasing amount of foreign investment. This is in part because of the country’s strong infrastructure, stability in politics and the legal system, and reliable internet and telecommunications connectivity.

Thailand has also received foreign direct investment to help increase its manufacturing industries, especially in the machinery and metals sectors. The country has also made strides in streamlining the process for obtaining construction permits to speed up needed construction projects.

**Develop core strengths and outsource the rest of the activities**

Many manufacturers try to perform too many tasks that they don’t realize can be outsourced and conducted at a lower cost. Although manufacturing every single component in-house is attractive from an oversight standpoint, focusing your time and energy on a few tasks rather than all of them can increase the quality of the component or product. By relying on a third-party provider that specializes in specific practices, manufacturers can realize a better value in the long run. The same goes for your organization focusing on core competencies.
Optimize forecasting and inventory management through collaboration between retailer and supplier/manufacturer

This strategy helps organizations improve fulfillment and product availability, reduce inventory and ensure an uncluttered supply chain that improves margins and profitability. With technology widely available and highly advanced, collaborators have many opportunities to utilize data and test for optimality in growing areas of the supply chain.

Utilize mobile technology and centralized management software

Mobile technology and a computerized maintenance management system (CMMS) help improve workflow efficiencies, improve field sales and marketing, and provide direct services to the customer or consumer. The information provided can include provenance, origin and contents of the item and any additional data, such as sustainability practices in the manufacturing process that can enhance the brand.

Build a responsive supply chain through a multi-channel approach

By utilizing data collected from point of sale systems and social media, your supply chain management team can identify trends and demand changes earlier to enable a faster response. In doing so, you'll increase sales, improve service levels and reassess inventory to maximize benefits. By utilizing multi-channel programs, your team can change the expectations derived from forecasting and build a responsive plan to address supply chain disruptions.
Mitigate Supply Chain Issues With a Flexible OEM Supplier

VPIC Group is the solid, dependable manufacturer that you can trust to help foresee and mitigate supply chain issues.

As your OEM supplier, we have risk mitigation plans in place, a constant watch on market trends and fluctuating costs patterns, strong raw material supplier relationships and a dedication to precision component manufacturing.

We also pride ourselves on providing others in the industry with ongoing knowledge. If you are interested in knowing more about whether or not you should outsource an aspect of your supply chain, read through our checklist, “Should I Outsource This Component?”

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