

# AUTONOMY IS THE FUTURE OF SUPPLY CHAIN

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An aerial photograph of a large port facility at dusk or night. The foreground is dominated by rows of colorful shipping containers (blue, red, green, yellow) stacked in neat piles. Several large yellow gantry cranes are positioned along the waterfront, with some illuminated. A large white cargo ship is docked at the pier. In the background, a city skyline with numerous skyscrapers is visible across a body of water, with lights reflecting on the water's surface. The sky is a mix of dark blue and purple, suggesting twilight.

In today's automated society, one of the most pressing questions is whether an autonomous supply chain is feasible - and, if so, when will it become a reality. While the transportation sector is investing billions of dollars in the development of self-driving or semi-autonomous vehicles, the idea of a fully automated supply chain appears to be more science fiction than reality.

Autonomous vehicles offer a lot of promise for helping supply networks adapt faster and more nimbly to customer demand. Autonomy allows robots to make judgments and take actions without the need for human interaction, which will improve supply chain speed and productivity. Without a doubt, this change will have far-reaching consequences for supply networks and supply chain management. Business executives must begin learning about autonomous technology today and planning for the day when it becomes a realistic choice for their company.

### What is an autonomous supply chain?

In theory, a completely automated autonomous operation is self-sufficient, requiring no human input or assistance. An autonomous supply chain must be capable of processing an order request, gathering the commodity from its location, and delivering the unit to the intended delivery point - all without the need for human interaction.



The supply chain automation procedure must specifically perform the following steps:

- Be able to decipher the order request and recollect facts in real-time.
- Determine the location of the components within a warehouse.
- Take care of the inventory by receiving, storing, and keeping track of it.
- Select components from a storage area and pack them according to shipping requirements.
- Load the component onto the appropriate mode of transportation.
- Ship the product using a variety of modes, including trucking, air freight, railroads, and boats.
- Unload the part and transport it to the appropriate delivery system.
- Hand over the part to a customer.

If each of the steps listed above can be executed without the need for human intervention, the supply chain can be considered fully autonomous.

We have lived through an unusual period in the last few years, with a continuous increase in supply chain disruptions caused by pandemics, geopolitical events, and the effects of climate change. All of these events have altered corporate supply chain expectations. In such a turbulent and fast-evolving industry, nearly 80% of firms expect supply chains to be able to make faster, more accurate, and consistent real-time choices, according to Gartner data.

With this in mind, CSCOs must develop a new supply chain operating model based on real-time data availability and people empowerment for better decision-making. Not only can digitalization help automate jobs that formerly required human judgment or action, but it is also a crucial enabler. Employees' trapped talent can also be released through technology, which frees up their time from non-value-added duties and improves their decision-making skills.

Leading supply chains such as Nestlé are already taking these steps. Nestlé is using technology to improve the automation and intelligence of its order-to-cash operation. The organization is looking into machine learning (ML) technology that can predict distinct client ordering patterns, estimate risks, forecast short-term customer orders, present different allocation possibilities, and adjust the allocation autonomously in real-time.

Someway people have started adopting the autonomous supply chain method: For several years, shippers, transporters, suppliers, and others in the supply chain have been incorporating autonomous technology to improve efficiency and safety records. Manufacturing is controlled through systems like ERP and MRP, which identify the parts needed to manufacture a product. In reality, many current automobiles, trucks, and SUVs are constructed entirely by robots. Other companies, such as Amazon.com and other large merchants, utilize self-driving technology to choose parts or commodities from smaller containers, package them, and prepare them for distribution.

The following are some of the specific components and equipment that are being automated to increase efficiency:



- Picking equipment for parts: Sensors and barcodes are read by these machines to identify components needed for assembly or delivery.
- Robotic picking: To pick products from steel and other storage, various automated forklifts and other autonomous equipment are already in use.
- Transportation equipment: Some autonomous vehicles are used to transfer equipment and supplies throughout warehouses (usually in warehouses).



## Benefits of Autonomous Supply Chain

Standardization, connection, and intelligence are fundamental elements of the autonomous supply chain. Everything is visible when everything is uniform, shared, and smart, making it easier to forecast events, establish plans, and enhance operations. Overall, operations can be cognitive and touchless, with data-driven and customer-focused decision-making.

Demand forecasting, for instance, can be improved significantly. Data on current orders can be augmented with lead information, and real-time order changes and statuses can be added to ensure that projections are accurate.

Access to retailer point-of-sale (POS) data in real-time can also help a lot. Machine learning can help with this by improving demand planning accuracy and connecting interactions and decision-making in fulfillment, for example. The results can be impressive: for example, one international FMCG company has improved forecasting accuracy while reducing planning costs by more than 25%.

## Hyperautomation

Many hyper-automation technologies, such as machine learning, will mature and become ubiquitous between 2025 and 2030. By boosting human judgment, they will assist in automating supply chain decision-making. Hyperautomation technologies will be available to improve decision accuracy and speed, for example, by scanning gigabytes of real-time supply chain data and offering insights, which is hard for people to achieve alone.

This is when Gen Z employees begin to advance into management roles. As a result, the adoption of hyper-automation, as well as understanding and acceptance of such technologies, will accelerate.

Supply chain autonomy is the eventual destination when all low-value human activities in the supply chain are largely automated. From a traditional work standpoint, this future supply chain will have less direct human involvement and intervention, which will meet the expectations of Gen Z employees. Employees in the supply chain will concentrate their efforts on creating the supply chain strategy, promoting innovation, providing excellent customer service and experience, and preventing AI data from being skewed.

## Conclusion

“A vast proportion of their supply chain activities will most likely become autonomous and self-healing after 2030, according to all of the supply chain leaders.” They do not, however, anticipate a supply chain that is completely devoid of people.

As old strategic boundaries are upended, the successful businesses of the future will be those that can adapt to quick changes in production, sourcing, and distribution. To place the strategic investments on flexible and agile technologies that will position a firm for success five to ten years from now, will demand foresight and a willingness to focus on the future.

Supply chain organizations are well-positioned to lead the adoption of autonomous technologies because they encompass warehousing, transportation, and related technologies, and they touch nearly every corporate function in some way.

A dedication to supply chain innovation, as well as the capacity to play a major role in change management and building a cross-functional governance model, will be required. Adopting a game-changing, revolutionary new technology is never easy. Supply chain innovators will need to act quickly while being pragmatic to attain such lofty aims. However, you should only invest in an autonomous project after determining that it is a strategic match for your company and that it will become a core activity.



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