

# Three Ways AI is Shaping the Supply Chain



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(Vitpho/Shutterstock)

The global pandemic has created challenges for supply chain professionals at retailers and transportation companies alike. While there is a surge in demand for essential products, there is also a massive shift away from ordinary, albeit somewhat superfluous purchasing. In short, it's easy to find a desktop headphone stand, but toilet paper is a little harder to come by.



AI and ML have become more common in the supply chain industry, which remains one of the few industries that hasn't been entirely transformed by data analytics. Here are three use cases that were being deployed before the coronavirus, each of which is taking a more prominent role in today's rapidly changing environment.

## ETA Improvements

Though it may seem like being able to forecast a delivery time accurately should exist, logistics professionals and planners are at the mercy of hundreds of factors outside their control. Unexpected weather issues, car accidents that shut down a highway, and yes, outbreaks, can cause tremendous strain on executing plans. For retailers who store their goods at a distribution center, staffing according to when most deliveries will be made makes sense – having extra hands to unload trucks means that trucks can get in and out faster, and employees don't spend time standing around waiting for the next load.

But this is relatively theoretical. While some companies have tried to switch to flexible scheduling (asking employees to time shift to meet delivery realities), not every employee can accommodate schedules that move two or three hours in either direction every day.

AI and machine learning, however, are getting better at understanding all of the variables that supply chain planners must overcome to gain access to a more accurate ETA. This is achieved by including known variables, such as understanding the time a driver might be leaving to deliver a shipment and perhaps making recommendations to change schedules in order to increase the odds of arrival within a specific window.



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There are roads in the US that tend to slow down at certain times of the day due to the glare from the sun. Incorporating weather and time of year into the known variables can lead to dramatic improvements in the accuracy of ETA.

## **Demand Matching**

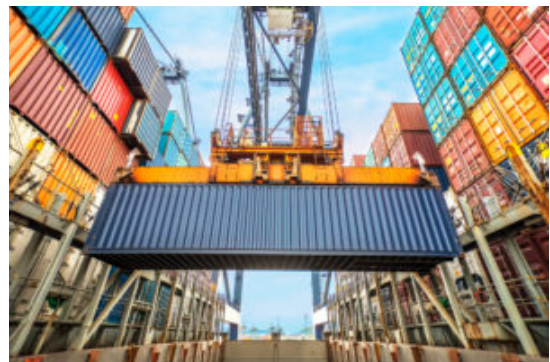
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A significant majority of the truckers on the road are part of a small fleet (6 or fewer trucks). Traditionally, this has created a massive hurdle when it comes to trucking efficiency. Drivers have taken a load from point A to point B, but have been forced to scramble to find some sort of load to carry back. The idea here is that it can be hard for a small company to have enough shipping relationships to have a round trip load; a driver might take a load for a retailer from the Port of LA to a warehousing facility for Walmart, but might not have access to an export from some other company.

That's changing as more shippers and carriers come to rely on freight boards and marketplaces, allowing a technology intermediary to create more efficient routing that identifies round trips for drivers based capacity needs from dozens or hundreds of shippers.

Environmentally, this has a tremendous benefit; nearly every mile a truck drives without hauling freight is essentially creating needless pollution. Financially, this makes tremendous sense for shippers and truckers alike; shippers gain access to a wider range of drivers while trucking companies no longer need to absorb gas and labor costs for trucks that aren't moving anything.

Many of the freight marketplaces on the market today are taking dynamic, even programmatic approaches to demand matching. This means identifying driver preferences on the routes and times they prefer to drive, and using AI to match loads with truckers.



*(via Shutterstock)*

The COVID-19 outbreak increased the flexibility needed in the supply chain for many companies, making demand matching even more critical.

There is a finite amount of trucking capacity, so much so that the federal government has relaxed regulations on how long a driver can go without taking a break. Many of the forward-thinking job boards are finding ways to better utilize what's available.

## **'Driverless' Driving**

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It's nearly impossible to write an article about AI's transformative effects on the supply chain without discussing autonomous vehicles. However, it's also important to note that these vehicles won't be truly 'driverless' for a long time.

Today, and over the coming years, we'll see trucks that operate under specific conditions without the help of a human driver. However, due to regulations and safety testing alike, there will be a driver involved in operating the vehicle when it encounters something unexpected. This person will either be in the truck or remote, but will help to train the AI systems powering a vehicle. For many drivers, this will be a financial boon. Drivers should be able to accrue more miles (and higher pay associated with longer distances) while doing less actual driving.

Over time, autonomous vehicles (AVs) will also lead to safer roads and more efficient miles traveled. AVs will be able to understand and adjust to expected gas mileage, maximizing their MPG (in the case of diesel or hydrogen-powered trucks) or miles-per-charge (for electric vehicles). AVs haven't yet transformed the way logistics professionals operate, but in the long term, they will have a dramatic impact on the efficacy of supply chains.

Machine learning and AI are becoming common across most segments of the supply chain, even if as an industry, logistics has been slow to welcome the benefits that come with machine-generated actionable insights. Autonomous vehicles are gaining early traction as tools that drive efficiency and sustainability. And while AVs aren't quite commonplace yet, incremental improvements to ETA and load matching are being incorporated daily, especially amid the pandemic sweeping across the globe.

*About the Author: Chris Lankford serves as vice president of engineering at NEXT Trucking, where he is responsible for the company's engineering organization and technical infrastructure. Prior to NEXT, Chris was vice president of engineering at a SaaS healthcare company.*