

# UNLOCKING THE POWER OF PREDICTIVE ANALYTICS WITH AI

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As the supply chain stabilizes, many manufacturers are returning to normal operations with more robust technological capabilities. In fact, nearly half of supply chain leaders increased spending on innovative technologies and systems during the pandemic — including predictive analytics.

Predictive analytics uses statistical algorithms combined with internal and external data to forecast future trends, which enables businesses to optimize inventory, improve delivery times, increase sales and ultimately, reduce operational costs. When paired with artificial intelligence (AI), the insights gleaned from these advanced systems are the key to more accurate and timely forecasting going forward.

## When Historical Data Is No Longer The Only Option

Predictive analytics improve

processes using machine learning and historical data like weather patterns, consumer behavior and gas price fluctuations. But what happens when historical data is no longer predictive of the future?

Consider the Covid-19 pandemic, during which an external, disruptive event shattered the global economy and skewed predictions. Supply chain leaders using predictive analytics in early 2019 and 2020 did not — and could not — account for the global economic shock caused by the pandemic.

For example, companies that manufacture PPE or toilet paper had no way of predicting how much the demand for those products would increase during the pandemic. Neither did the raw material providers that make these products possible. Meanwhile, small businesses, restaurants and service providers had no reliable

way of adjusting their inventories and operations to match demand.

Consumers' behavior and purchasing patterns during the pandemic were not predictive, either. Businesses are struggling with forecasting due to anomalies in consumer behavior during 2020, and the decision to even include data from 2020 in predictive models is debatable.

There will always be outlying factors that skew data. But the more data sources you have, whether internal or external, the more accurate your predictions will be when paired with AI and predictive analytics. The challenge can be knowing where to find it.

## How Predictive Analytics And AI Can Optimize Supply Chain Efficiencies

Pairing predictive analytics models with AI are crucial in improving

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forecast accuracy post-pandemic. In practice, this means having up-to-the-second data for every resource. Plastic supply, for example, could be affected by shortages of certain raw materials due to natural disasters or unexpected shipping delays. An AI system could proactively flag likely events, resulting in more informed decision-making.

AI is expected to grow to a \$309 billion industry by 2026, and 44% of executives report decreased operational costs as a direct result of implementing AI. Here is a closer look at how you can enhance predictive analytics with AI in the supply chain:

- Inventory management: Even before the pandemic, inventory overstock and understock contributed to millions of lost dollars every year – a lack of real-time inventory visibility played a pivotal role in these issues. When you sync real-time data with AI, you can optimize your inventory management beyond simple reordering.

Monitoring technologies like internet-of-things (IoT) devices in the warehouse provide real-time alerts for low inventory so you can

restock products before they go out of stock. Over time, an AI-based solution can gather data and recognize patterns, enabling you to plan inventory more effectively.

To get started, you need the data to actually analyze. From the basics of barcode scanning to RFID and other warehouse automation technologies, you can capture all of the data points. When data such as every single barcode scan is fed into an AI/analytics engine, this data can give you insights into the patterns of your inventory movement, sales, and also insight into how to optimize workers' roles.

- Delivery optimization: In recent years, predictive analytics has been used to optimize trucking routes and ensure on-time deliveries. But what happens when events occur like accidents, traffic congestion or severe weather? These, and other unforeseen instances, could cause roadblocks in delivering or backhauling goods in the supply chain. This is where the power of analytics and AI come into play. By analyzing these events, it will give future insights as to how to deal with and prepare for these situations.

Route optimization software can be paired with AI to enable real-time rerouting based on previous factors. AI algorithms would now be capable to even predict the best times for deliveries, potential delays and other transportation and delivery factors.

In addition to route optimization, IoT devices can gather real-time sensor data on trucks to optimize operational aspects of deliveries. For example, this technology can sense object shifts in transit, load imbalances and sudden stops, revealing insights for smarter decision-making going forward.

### **Unlocking Actionable Insights Through Data**

The recent pandemic shined a light on the power of predictive analytics paired with AI. Data collection is crucial in the supply chain, but it is useless if it does not lead to action. We are gathering more data than ever – but we need AI to transform it into predictive and actionable insights. To get started today, you need to have a good plan and team buy-in to actually start capturing the data points and the appropriate technology on your journey towards fully implementing predictive analytics utilizing AI.

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