

Driven Prediction: How AI Helps Pharmaceutical Companies to Stay Afloat



Forecasting Demand Drives Customer Satisfaction

The COVID-19 pandemic took its toll on many world's leading industries, and fortunately, some were more equipped to deal with its consequences.

The pharmaceutical industry was one of the most affected by the adverse effects of the pandemic. At the [Datavore](#) event this year, notable figures in the industry, such as the Director of Business Intelligence in Pharmascience Inc., provided us with an insight into the obstacles the pharmaceutical industry had to overcome during the pandemic, such as forecasting difficulties, and how data science and AI were quickly and efficiently used to overcome the recent challenges.

According to a recent article by [Forbes](#), AI and machine learning are now being used to monitor and predict epidemic outbreaks before and after they occurred. In Datavore 2021, it was revealed why the application of AI in the pharmaceutical industry was inevitable:

Firstly, given the pharmaceutical industry's highly competitive nature, accurately forecasting the demand can significantly benefit the companies. Overforecasting can lead to the wasteful overuse of the supply chain, while under forecasting can lead to not meeting consumer demand, ultimately resulting in poor customer satisfaction.

Secondly, in usual cases, traditional forecasts work well when there are no disruptions and all operations are going smoothly, but COVID-19 circumstances proved to be anything but ordinary. Increased border control and port restrictions made predicting the arrival of material incredibly difficult. Not only that, COVID-19 hot spots made it impossible for some workers to get to work, consequently affecting the capacity of the suppliers.

Lastly and most obviously, there was a notable change in customer behavior. A universal state of panic spread everywhere, and just as we saw with toilet paper, people hoarding large amounts of medicines caused a significant strain on manufacturers. When this occurred to one manufacturer, they automatically went on backorder, so customers shifted to another supplier, who eventually also had to go on backorder. Suddenly, the entire market was out of stock, and consumers were left

without getting what they needed. Pharmaceutical companies can utilize AI to prevent such events from happening again in the future.

DS Skills for All: Data Integration and Predictive Modelling

Companies need to respond to the changes in business needs and create a process where they can use data to forecast customer demand, amongst other things, through indicators powered by AI. In this context, the Pharmascience employees must be upskilled and reskilled in Data Science and AI to help the companies to stay competitive.

These are the two ways in which ambitious pharmaceutical workers can use data science & AI to help their company thrive in the industry:

- 1) Integrating external data sources with internal data sources —A data scientist will need to learn how to collect new data and process it before analyzing it. This is essential as raw data can have a large amount of unwanted features and outliers. These points are very different from other points and are not representative of the relevant trends. A good data scientist must be able to identify which features they should use in their analysis, isolate them, and find unwanted points before removing them. This will help in the more accurate prediction of trends.
- 2) Once the data has been collected, AI can empower companies by processing vast amounts of data that can later be used both in-production and post-production. In production, Novartis has used Convolutional Neural Networks to classify digital images of cells that have been treated with different compounds to help researchers identify those worth researching. This accelerates the research process by assisting researchers in deciding where to spend most of their time. Furthermore, as mentioned previously, in post-production, an aspiring data scientist will need to learn the fundamentals of time series analysis to apply statistical techniques that will produce forecasts.

Training in Data Science and AI will only empower your company to achieve improved forecast models, a better relationship with your consumers, and a more efficient in-production and post-production process.