

 HOME / BUSINESS BLOG / PROJECT MANAGEMENT /

## Project Management

# The importance of price prediction

 **DATE:** 7 March 2023 |  **READING TIME:** 8 min



AUTHOR

**Paul  
Herman**



 [BACK TO ALL POSTS](#)

## **Why is price prediction essential for avoiding the digital leap of faith and making the best business decisions?**

1. Introduction
2. What is price prediction?
3. How to implement AI and ML into price prediction
4. What benefits do businesses see from price prediction?

## 5. Conclusion

---

# Introduction

Every business must find **a way to stay competitive** in an increasingly large market full of competitors. Customers find themselves with hundreds of options to choose from for products and services, with **the choice largely coming down to the price point** at which they can acquire such products.

**To offer the best prices possible while still turning a profit requires price prediction**, which can accurately predict the most competitive price a company should set based on the market. Price prediction has played an increasingly important role in the ability of a company to remain competitive, and it comes down to the benefits it offers and its viability as an AI/ML-based solution. Why is **price prediction essential for avoiding the digital leap of faith** and making the best business decisions? Let's start with the basics.

## What is price prediction?

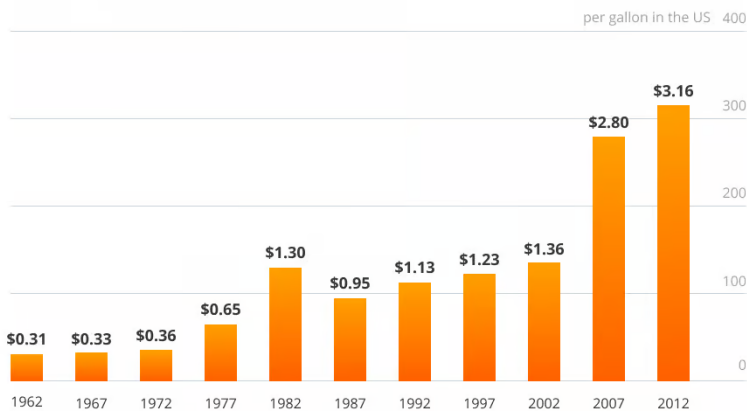
Price prediction, also known as price forecasting,

is simply what it says. It is **the predicting of the price of a commodity, product, or service by analyzing factors such as characteristics, demand, seasonal trends, the prices of other commodities, offers from numerous suppliers**, and many others. Furthermore, **price prediction is an algorithm** that analyzes numerous factors, and it is also called predictive pricing.

As seen in the graphic below, one might be able to predict the price of gas in 2013, given the pattern of increasing prices from 1962 to 2012.

### Historical **Gas Prices**

Per gallon in US (U.S. Energy Information Administration)



Source: <https://www.smartdraw.com/infographic/>

## COMMON USES OF PRICE PREDICTION

The uses of price prediction include **increasing customer loyalty and engagement**. By accurately reflecting the prices of different goods

and services using accurate data, customers are more likely to trust the company and its business processes. Therefore, price forecasting can **both attract new customers and optimize sales.**

In addition to pleasing consumers, **price prediction also pleases businesses.** Businesses may use information about prices in a future period to make strategic decisions. Entrepreneurs can determine a certain time to invest in businesses and even evaluate the investment value of certain assets.

Furthermore, price prediction is **perfect for organizations looking to enter a new market or explore a new niche.** While some companies believe they have a good understanding of different markets to accurately predict prices themselves, price prediction has its benefits and uses statistically accurate methods.

## HOW DOES PRICE PREDICTION WORK?

As previously hinted, price prediction works by **using an algorithm** to analyze historical prices, economic growth rates, and other factors related to the pricing of goods and services. However, to achieve a more accurate snapshot of the market in a future period, regression analysis is used to formulate price prediction models. **Regression analysis, in this case, is defined as analyzing the relationship between an independent**

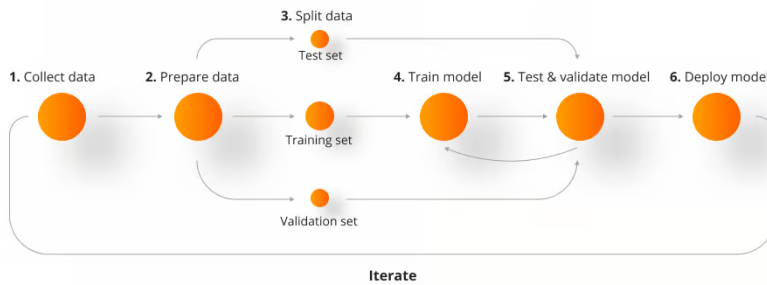
## **variable and single or multiple dependent variables.**

Linear regression model analysis allows researchers to determine how different predictors influence a target variable, which is always noted as a numeric value. Furthermore, **price forecasting is done through predictive and descriptive analytics.** **Predictive analytics** is the fundamental analysis of past trends to determine future events. For example, if the price of corn up to six months ago was \$12 per pound, the price of corn in the next six months could be close to \$12 per pound or more, depending on the price trend of corn.

On the other hand, **descriptive analytics** is the reliance on statistical methods to transform raw observations into knowledge. Overall, price prediction is done through an algorithm that takes into account regression, past and present data, and statistical methods.

The graphic below highlights the key steps to price prediction. The process is often carried out **using the power of machine learning and artificial intelligence** to complete the below process.

## Key steps to **price prediction**



Source: [www.altexsoft.com/blog/business/price-forecasting-machine-learning-based-approaches-applied-to-electricity-flights-hotels-real-estate-and-stock-pricing/](https://www.altexsoft.com/blog/business/price-forecasting-machine-learning-based-approaches-applied-to-electricity-flights-hotels-real-estate-and-stock-pricing/)

## How to implement AI and ML into price prediction

Now that we have discussed what price prediction is, it is important to understand what powers it. In the modern business world, **price prediction is most effectively supported by artificial intelligence and machine learning algorithms.**

### HOW DOES ARTIFICIAL INTELLIGENCE CONTRIBUTE TO PRICE PREDICTION?

Artificial intelligence can help businesses of all sizes make price forecasts by **analyzing large amounts of data**. Machine learning algorithms, for example, can **collect information about customer behavior and price to build complex models** that accurately predict price movements. AI makes it easier to **identify price risk in near**

**real-time**, so price forecasts can be made with more accuracy than humans alone.

Additionally, the use of AI technology removes the need to crunch numbers manually, **saving time and resources** while increasing efficiency in the financial forecasting process. In short, AI has made price forecasting much easier to achieve and provides better insights than ever before.

## THE HYBRID APPROACH TO PRICE PREDICTION

Businesses are increasingly relying on the combination of statistical techniques and artificial intelligence (AI) to generate price predictions. This is often referred to as **the 'hybrid approach' to price forecasting**.

Machine learning algorithms are used to analyze large datasets in order to glean valuable insights that traditional financial forecasting models may struggle with.

## Machine Learning Market Snapshot



Source: [www.reportsanddata.com/report-detail/machine-learning-market](https://www.reportsanddata.com/report-detail/machine-learning-market)

**Data-driven price forecasting** allows businesses to make decisions informed by their historical data and sales behavior and the ongoing evolution of market dynamics. AI price forecasts can be improved over time as more data becomes available and machine learning technologies mature. As a result, **businesses can price their products or services in a way that maximizes profitability while still being competitive** on price points for their customers.

## SELF-LEARNING MODELS

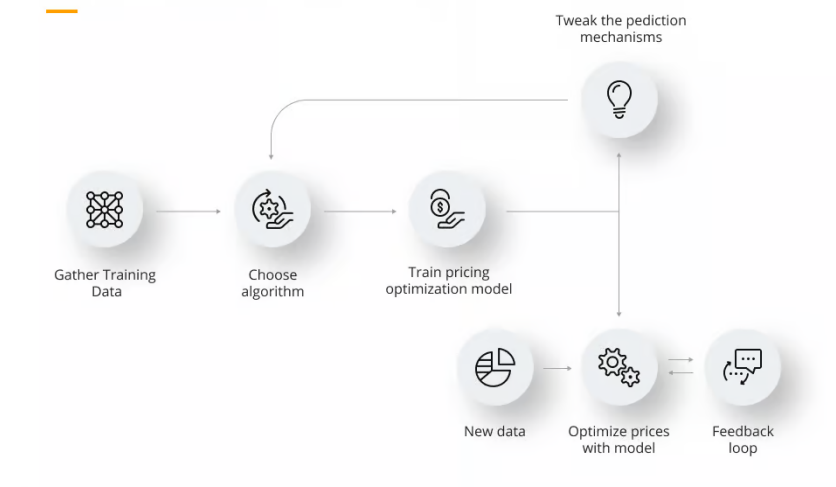
Machine learning algorithms are uniquely able to



perform this task because of their self-learning nature. **A self-learning model** is a type of data operation that **involves using data to acquire and improve skills without being explicitly programmed**. These models have the capability to recognize patterns within sequential data sets and draw predictive conclusions based on those insights.

Machine learning models use data to 'learn' how to perform specific tasks, like recognizing objects in photos or translating text from one language to another.

### Machine Learning in retail



Source: [www.projectpro.io/article/top-10-machine-learning-projects-for-beginners-in-2021/397](https://www.projectpro.io/article/top-10-machine-learning-projects-for-beginners-in-2021/397)

Self-learning models enable machines to **refine their performance over time with lower data input limits**. This action is important because price forecasting incorporates such a large amount of data with time-dependent variables. Although generating models with high

construction quality is expensive. The future value it offers can greatly enhance business performance.

Depending on a company's economic situation and cash flow, **there are a variety of different options or price prediction tools** that companies can choose from. In order to generate real-time predictions and capture all possible variables, machine learning is the only option for a modern business.

## What benefits do businesses see from price prediction?

There are **four major benefits** that can price prediction tools can bring to businesses' current operations as part of their price strategies. Each one of them demonstrates **how important it is for businesses to accurately forecast future values** to determine the correct future price of a service or product.

## PRICE PREDICTION CAN COPE WITH PRICE VOLATILITY

Price volatility denotes the price fluctuations of a product, which can make it difficult to make future financial and operational decisions. **To measure price volatility**, a day-to-day

percentage difference in a product or service's price must be taken. These fluctuations may be minimal in the short term.

In the long term, price volatility is an essential parameter in a company's performance and long-term strategy regarding price assessment because it allows businesses to use financial data within their predictive analytics to predict future price points.

### Snap Inc. with **Bollinger Bands**



Source: Image by Sabrina Jiang © Investopedia 2020,  
<https://www.investopedia.com/ask/answers/021015/what-best-measure-given-stocks-volatility.asp>

By using machine learning and artificial intelligence in financial forecasting, companies can measure price volatility and price prediction over any time interval. In the context of the stock market, where prices can change in milliseconds, this type of capability is invaluable, as companies can quickly adapt using historical prices, current and historical data, and future trends to predict stock prices.

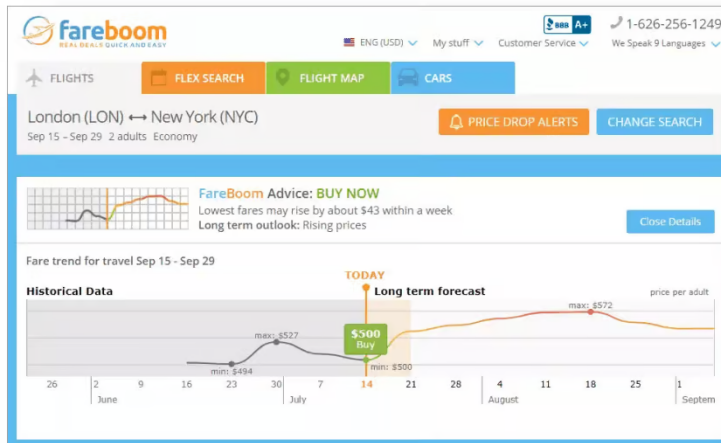
**The system can analyze and respond to a myriad of factors in a fraction of a second** when making a stock prediction, which is something a human is incapable of doing when it comes to analyzing market sentiment and future trends to determine future stock prices.

## **PRICE FORECASTING MODELS CAN ANALYZE MULTIPLE DATA SOURCES AT ONCE**

Price prediction **can be difficult** due to the variety of data collection required, from internal market reports, past data, statistical analysis of competitors' webpages, and CRM files. This overload of collection can be a challenge for humans to look over not only current data sources but hundreds of past and predicted future ones, while **artificial intelligence forecasting tools** would perform better with more accurate data.

If reliable sources are chosen and the data is used effectively, the model's prediction performance will be exceptional at making **informed predictions and deriving meaningful insights**. Additionally, price movements and patterns that may have been found manually will be easily discerned.

## Fareboom purchasing advice and a prediction on a price change



Source: [www.altexsoft.com/blog/business/price-forecasting-machine-learning-based-approaches-applied-to-electricity-flights-hotels-real-estate-and-stock-pricing/](http://www.altexsoft.com/blog/business/price-forecasting-machine-learning-based-approaches-applied-to-electricity-flights-hotels-real-estate-and-stock-pricing/)

## MACHINE LEARNING (ML) IMPROVES THE ACCURACY OF PRICE PREDICTIONS

The accuracy of traditional pricing methods is **not very reliable**, as most **conventional methods value intuition** and subjective opinion over hard data. Businesses that adopt business processes based on intuition quickly find themselves lagging behind and the market turning against them.

On the other hand, if **artificial intelligence** is used in forecasting tools to resolve a price prediction problem, a business will be able to **price faster and more accurately**, allowing them to face the challenges of a large and robust market head-on. In the stock market, this could allow for **predicting stock prices more**

**accurately**, allowing companies to adapt business processes towards using price predictions in different stock markets.

## **ML CAN HELP YOU IMPROVE YOUR PROFIT MARGIN**

When **machine learning** is used in business forecasting and price prediction, **businesses can gain a deeper and more nuanced understanding of how prices change and evolve** throughout the year. If there are noticeable patterns, these can be used to effectively increase a company's price margins and generate strategies based on quantifiable data.

For example, if a manufacturer or supplier noticeably increases their prices during a certain period of time each year, companies can stock up on goods beforehand, allowing them to avoid the price increase and increase their future profits. This instance is just one of the **many scenarios in which price prediction can be used to successfully benefit** the company that utilizes it.

## **Conclusion**

**AI/ML implementation for a business can make a difference** in an increasingly

technologically advanced market. Companies search hard for the best methods they can use to compete with their competitors, and price prediction, with AI and ML implementations, is one of the best solutions companies can utilize.

Businesses using price prediction may be unhappy with lowering the prices of their items and reducing the short terms profits they can receive, but **in the long term, price prediction will allow these companies to remain competitive and achieve future profits and success.**

## Data Science and Engineering



Process data, base  
business decisions  
on knowledge and  
improve your day-to-  
day operations.

LET'S WORK  
TOGETHER