



prevedere

— Intelligent Forecasting *In Action* —

FOR MANUFACTURING

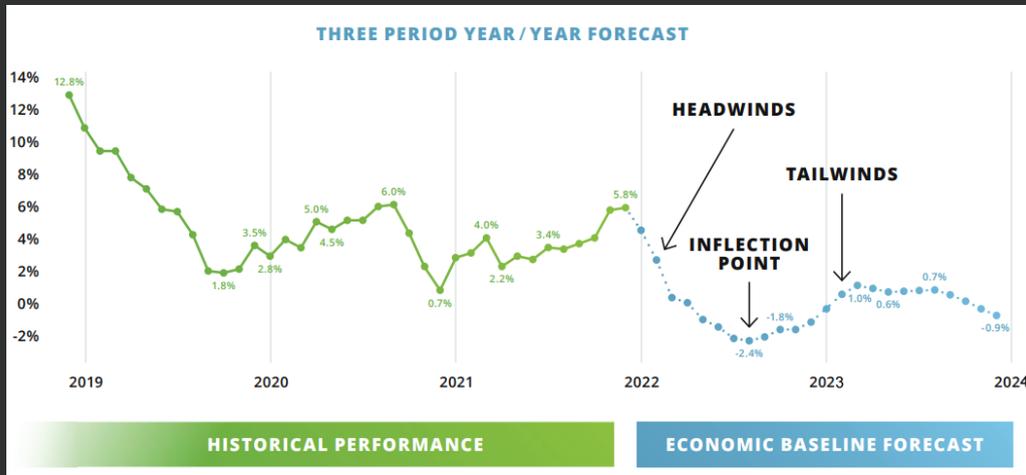
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What is Intelligent Forecasting?

"Predict the future, but eliminate guesswork and gut feel"

Businesses are increasingly impacted by outside forces, whether economic conditions, industry shifts, demographic changes, health crises, consumer behavior, and much more.

Intelligent Forecasting is a transformational practice that enables manufacturers to plan more accurately for the future, by incorporating external volatility into their plans.



This sounds easy, but is now only possible with the combination of big external data, predictive AI modeling and cloud computing.

Starting with a 3-5 year history (e.g. sales), Intelligent Forecasting is able to model and calculate economic baseline forecasts and specific market demand outlooks for a business, whether at total organization, country, brand, channel, or category levels.

"No more sticking your finger in the wind."

Intelligent Forecasting incorporates econometric modeling, a proven and accurate prediction method which eliminates guesswork, gut feel and bias. This data driven method identifies the leading external drivers of business performance, and thru extensive machine learning creates thousands of prediction models, ranking them by quality score. Prediction accuracy is frequently greater than 96%, proven instantly by 'back testing'.

This evolutionary approach augments existing forecasting practices and provides accuracy and agility for executives and planning professionals, whether Office of the CFO, FP&A, S&OP, product management, supply chain, or demand forecasting.

Market Volatility = Manufacturer Challenge

Manufacturing, like many other industries, is facing an increasing challenge from market uncertainty and volatility. Consumption behavior is impacted by events beyond the control of organizations, highlighted by the disruptive COVID pandemic.

Even in our world of data-driven planning, basing predictions and forecasts on internal data is just not going to cut it anymore. While marketing, promotions, and merchandising can affect demand that drives manufacturing, customer behavior is also driven by factors such as supply chain bottlenecks, health crises, macroeconomic corrections, price index volatility, and more.

Without an accurate prediction of our operating future, the ability to gain market share, allocate resources and optimize working capital is at tremendous risk.

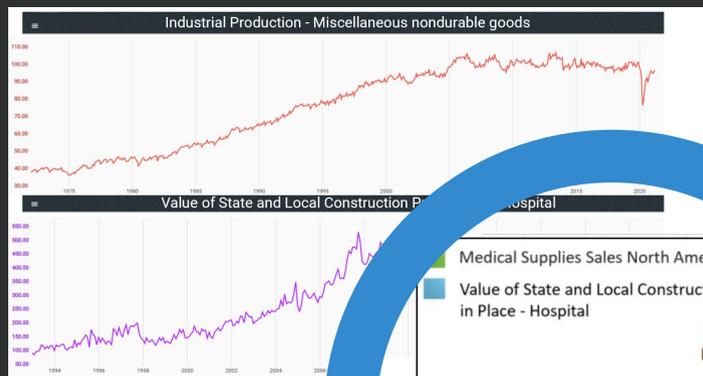
So how do we realistically quantify market volatility and external variables into manufacturing planning cycles?

**More blind spots lead to
forecast inaccuracy**



How to Incorporate External Factors

Step 1: Which Economic Drivers Impact My Manufacturing Business?



By analyzing external factors that directly correlate to your products' sales performance, you'll have accurate answers to why certain trends occurred, and via predictive modeling what's most likely to occur.

Was it volatility in producer price indexes, or changes in the local economies? Armed with answers to these previously unanswerable questions, you can better explain the past and prepare for the future, whether planning product demand, resources, or inventories.

Prevedere is paving the way for manufacturers to identify and analyze millions of economic, industry and supply chain drivers to identify the top leading indicators for your product categories, brands, channels and geographies.

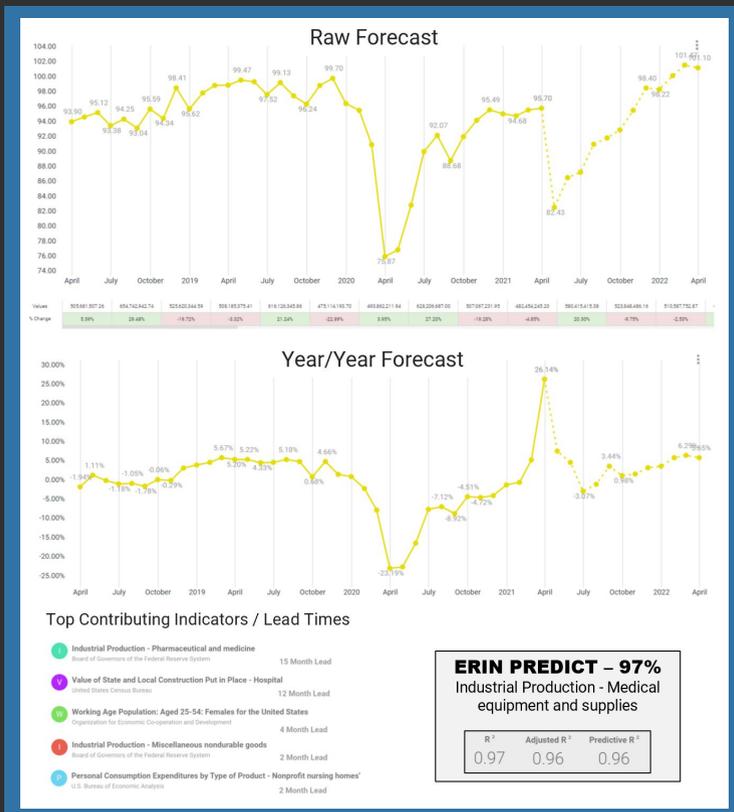
Intelligent Forecasting starts by correlating millions of economic and industry data sources to your historical performance, e.g. 3-5 years of sales data for US medical supplies.

Five to ten leading indicators will be identified as most predictive for the layer of business under review, for example:

- Value of State and Local Construction - Hospital
- Working Age Population: Aged 25-54: Females
- Industrial Production - Misc nondurable goods
- ISM Manufacturing: PMI Composite Index
- Pharmaceutical preparations - All Employees
- Producer Price Index by Industry
- United States - Medical / Veterinary - Employees Working

How to Incorporate External Factors

Step 2 - Create Predictive Models from Indicators



By looking at leading indicators you can actually project what to expect 6, 9, 12 and 18 months ahead. Annual forecasts project up to 5 years ahead.

This is where data science kicks in. If you are a R or Python specialist, and understand how econometric modeling works, identify the leading indicators from millions of external data sources, then create hundreds of predictive models. Incorporating machine learning algorithms to refine, test, score and rank the models. To be honest, it might take a while to develop from scratch.

Alternatively you can leverage Prevedere's global data repository and predictive AI engine, called ERIN (External Real Time Insights). The technology can systematically create thousands of models based on the most predictive indicators.

On the left we see a model for an industrial manufacturer of medical equipment, in this case a demand forecast for medical equipment and supplies in the US. Having been provided 60 months of sales data, ERIN identified the top contributing indicators, then created / tested / refined multiple predictive models. The top scoring model, in this case, has a R squared value of 0.97 which was back tested to be 97% accurate.

The resulting forecasts (raw, year over year, CAGR) were then incorporated by the FP&A team into the planning process, benchmarked with the internally generated predictions, and adjustments made. Forecasts, variances and leading indicator projections provided sales, production, procurement and executive leadership with invaluable insights to refine plans, resulting in increased efficiencies, profitability and competitive advantage.

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95.2% Average Forecast Accuracy Validated by Back Tests

Case Study

This billion dollar global chemical manufacturer has a forward-looking exec team that wants to bring market and economic intelligence into their strategic planning process.

Prevedere worked with business unit leadership teams and corporate finance to create forecasts for medium to long range planning, to allocate resources and optimize working capital.

Prevedere's predictive AI solution identified leading indicators in days, built and tested econometric forecasts and scenarios which delivered executive insights to their FP&A, production and leadership teams. In just a few weeks, the leadership team was armed with forecasts that enabled them to increase revenue and decrease cost across their company.

“With Prevedere we create and continually update forecast models for global divisions. In one division alone, timely and accurate forecasts drove an \$8 million saving in excess inventory reduction.”

Leading indicators included:

- Purchasing Managers Index
- Cass Freight Shipments
- Economic Policy Uncertainty
- Imports - Major Global Economies
- Crude Oil Prices: (WTI)
- Residential/Commercial Construction

Takeaways

With market certainty out of the window for the foreseeable future across almost all industries, accurate predictions of the future are no longer a luxury, but an absolute necessity. An organization that creates forecasts based only on internal data and questionable assumptions, is living on borrowed time.

External insights married with internal forecasts provides unprecedented foresight into manufacturing planning and big picture performance. There are tactical benefits for operational planners and strategic benefits for executives, including:

- Improve forecast accuracy to drive purchasing and production decisions
- Understanding manufacturing market drivers, dynamics, trends and projections
- Insight into customer demographics, preferences and consumption drivers
- Predictions for cost management, e.g. future price of commodities
- Strategic intelligence for new market, location and category opportunities
- Market foresight to plan and execute months ahead of competition

Bottom line, Intelligent Forecasting helps manufacturers make better planning decisions by providing personalized economic intelligence on their industry, their supply chain, and the demand for their products. Business leaders can use these insights to challenge or defend long held assumptions when planning for the future. By knowing all the factors that influence demand, manufacturing companies can be better prepared for future volatility and uncertainty.

A photograph of a person's hands writing in a notebook on a desk. There are two laptops, several pens, and a mouse visible. The scene is dimly lit, suggesting an office or study environment.

**Identify Business Drivers,
Predict Performance,
Foresee Market Volatility.**

Getting Started

Plan and forecast more intelligently in the new world

Add predictive analytics and economic intelligence to your business.

Getting started is easy:

- Select a layer of your business (e.g. US plastics category)
- Provide 36 - 60 months of performance data (e.g. sales)
- That is all we need to start Intelligent Forecasting

Talk to Prevedere to identify how Intelligent Forecasting can benefit your organization.

For more information, please contact
(888) 686-7746 or inquiries@prevedere.com

