# e2open®

Demand Sensing

Accurate Forecasts Based on Real-Time Demand Signals

Estimating aggregated demand months in advance is an established practice, but accurately predicting customer orders over a time horizon of several weeks is next to impossible without advanced data science. E2open® Demand Sensing uses automation and machine learning technology to analyze real-time supply chain data, determine the influence of multiple demand signals, and produce an accurate daily forecast for every item at every location.
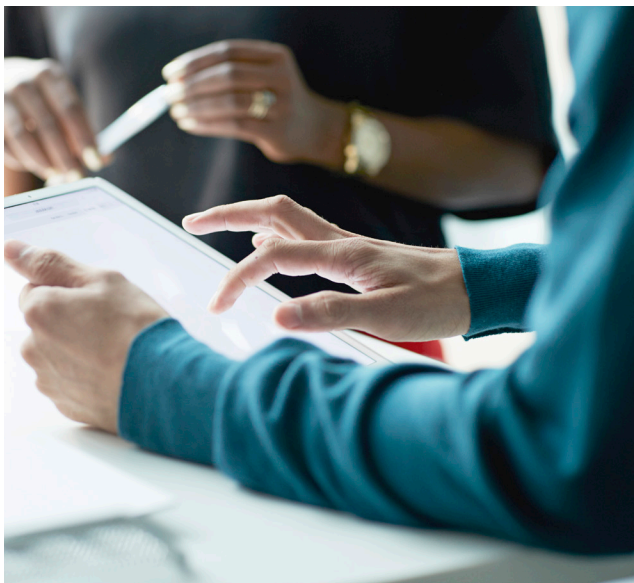
Traditional demand planning techniques were developed decades ago when distribution channels were few, and history was the best predictor of future demand. Such techniques are inadequate for near-term forecasting in today's more complex environment, which presents a number of obstacles:

- Volatility driven by fast-moving changes in consumer preferences and social sentiment
- Increased pace of new product introductions and the resulting item proliferation
- More varied marketing programs that alter consumer behavior
- Omni-channel strategies that disrupt traditional distribution and make order history of limited use

Part of the e2open Planning suite, e2open Demand Sensing examines multiple sources of real-time data. Using machine learning, the application combines these inputs to predict near-term demand with a 30 to 40% improvement in forecast accuracy compared to traditional time-series approaches. Field-proven with more than a decade of use in over 180 countries for $250 billion in annual sales volume, the application is a core part of the demand-driven digital transformation strategies of leading global companies.

Key Features

- Leverages multiple real-time signals to sense demand shifts and respond to changing market conditions
- Uses machine learning to quickly process all data, identify patterns, and automatically produce a near-term daily forecast
- Publishes forecasts to supply planning systems without the need for human review
- Scales across large numbers of items, locations, and channels with a proven track record in some of the world's largest supply chains
- Complements existing demand and distribution planning systems

Key Benefits

- Improves short-term forecast accuracy by 30-40% compared to traditional methods
- Reduces inventory by 10-15%, freeing up cash and improving return on capital
- Improves customer service by ensuring on-shelf availability
- Increases sales by sensing and responding to real-time market opportunities
- Helps maximize the return on investment (ROI) for product innovation and promotional events

Precise Daily Forecasts for Execution Time Horizons

While demand planning typically generates a monthly or weekly forecast, near-term activities such as replenishment are usually planned daily. The traditional approach to bridging this gap is to use simple rule-of-thumb proration logic to convert monthly or weekly forecasts into the daily granularity required by distribution requirements planning. However, this conversion step yields a crude estimate of daily demand and fails to consider other key factors such as the multitude of available signals or how orders in one period affect orders in subsequent periods. With e2open Demand Sensing, organizations receive accurate daily forecasts for the next six to 13 weeks. The result is better replenishment decisions — each and every time.

Real-Time Analysis of Multiple Demand Signals
Near-term forecasting must take into account the latest data on open orders, shipments, and consumption. Data might also include customer and channel inventory, weather, social sentiment, and other demand signals. This information can help companies detect shifts in demand that will affect customer orders. Point-of-sale (POS) and channel data can come from a company's existing systems or e2open Demand Signal Management and e2open Channel Data Management.

Machine Learning Pattern-Recognition Algorithms
To make sense of multiple complex demand signals, companies require advanced machine learning pattern-recognition algorithms that can determine what is predictive and what is not. Influence factors for each signal vary by product, location, and time horizon. The relationships among these factors may change over time, requiring continuous self-tuning.

Automatic Clustering

Predicting new product orders presents a particular challenge for demand planning because of the lack of historic data to serve as the basis for forecasting. E2open Demand Sensing uses clustering algorithms to identify groups of related products so new product behavior can be modeled on that of products that are similar. Machine learning algorithms identify such clusters with more predictive accuracy than is possible with planner intuition alone.

Projection of Supply Requirements
The ultimate goal of near-term forecasting is to create the most accurate picture of projected inventory requirements. After e2open Demand Sensing creates a demand forecast, it can then forecast replenishment based on how daily demand will erode existing inventory. The replenishment forecast can in turn be used to generate supply requirements.

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Receive the best forecast for execution time horizons and improve short-term forecast accuracy by 30 to 40%. A real-time response to real-time demand enables an agile and demand-driven supply chain that is always aligned with current market realities.

About e2open

E2open is the connected supply chain software platform that enables the world's largest companies to transform the way they make, move, and sell goods and services. With the broadest cloud-native global platform purpose-built for modern supply chains, e2open connects more than 400,000 manufacturing, logistics, channel, and distribution partners as one multi-enterprise network tracking over 12 billion transactions annually. Our SaaS platform anticipates disruptions and opportunities to help companies improve efficiency, reduce waste, and operate sustainably. Moving as One™. Learn more: **www.e2open.com**

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