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Antuit.ai Replenishment

Augment your replenishment system with the most advanced AI

The Replenishment Conundrum

Inventory is often the single largest investment a retailer makes. Each unit of this investment becomes productive when it enables a sale, i.e., when the consumer finds the desired item at the right time and location, and a transaction occurs. Doing so profitably is a formidable challenge, requiring millions of replenishment decisions daily. For each item/location/day, too little inventory increases the risk of lost sales, whereas too much inventory ties up capital unproductively.

Finding the sweet spot between those two extremes and their associated costs: lost margin and inventory carrying costs, respectively, is a challenge with ramifications across several functions: supply chain & logistics, merchandising, and finance.

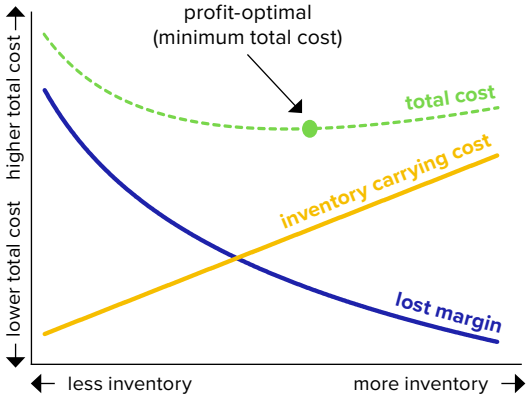
Most replenishment systems today have two common shortcomings:

i. **arbitrary rules** based on weeks of supply, target service level, or similar logic disconnected from profit goals.
ii. broad-brush logic applied to entire categories and/or groups of stores **regardless of their specific nuances**.

Antuit's Profit-Optimal Replenishment Solution

Antuit's profit-optimal Replenishment solution addresses both common shortcomings. First, every item/store has a target inventory based on that item/store's characteristics of demand and supply chain parameters. Second -and most important- the target inventory is calculated with profit maximization as the primary objective.

Antuit's approach is to find the target inventory for each item/location, which maximizes the return on the inventory investment. It explicitly incorporates demand uncertainty into the decision process and determines the optimal balance between "short" and "long" risks. Both are measured using the true performance yardstick that matters: profit. Consequently, the decision (how much inventory) ties directly to the desired outcome (profit).



These inventory recommendations are dynamic and based on consumer demand. They maximize profitability by simultaneously **minimizing the overall cost of deploying inventory (lost margin + inventory carrying cost).**

How does it Work under the Hood?

Antuit.ai's Replenishment solution uses a combination of Artificial Intelligence and Stochastic Optimization to identify the profit-optimal inventory level for each item/location/replenishment cycle combination.

Artificial Intelligence - Replenishment leverages the advanced techniques of antuit's AI Demand Forecast to identify and estimate all drivers of demand, such as seasonal fluctuations, trends, price and promo effects, cross-product effects (halo, cannibalization), etc., which are continuously adjusted and re-calibrated based on the most recent demand signal.

This forecast provides an accurate, unbiased projection of consumer demand composed of an estimate of mean demand, a measure of unexplained demand variability, and the appropriate probability distribution (the "shape" of demand). A probabilistic forecast is more effective than the commonly used point projection, e.g., a random guess such as "demand for item A in store X next week will be four units".

Stochastic Optimization (SO) - Replenishment takes in all those demand signals and combines them with two additional types of inputs:

i. Product economics: cost, margin, inventory costs (carrying, handling, obsolescence, shrink, etc.)
ii. Supply chain characteristics: review period, lead time, case pack size, shelf space, minimum display, etc.

Optimization then calculates inventory recommendations for each item/location/day, which minimize the expected total replenishment cost. This is equivalent to maximizing the expected profitability of positioning inventory for each SKU and store.

As part of the solution, omnichannel awareness balances inventory across the different channels and fulfillment paths, such as BOPIS, traditional e-commerce, in-store kiosks, brick-and-mortar, etc.

Replace or Augment?

Augment. In its most straightforward application, antuit's Replenishment solution provides order-up-to-points (OUTP) used by the retailer to drive replenishment. At review time, the retailer compares the store inventory position to OUTP and orders up to the difference, adjusted for case pack size and minimum order values, if they apply. This simple process is all needed to start injecting profit-optimal inventory recommendations into your supply chain and enjoy its benefits.

Operational highlights:

i. Light-touch approach: no need to replace the existing order management and execution system. Keep the existing machinery and feed it better numbers!
ii. Speed to result: the time between the go-forward decision and go-live is measured in weeks, not months.
iii. Business fit: additional requirements and features can be layered in as needed.
iv. Leverage workforce: with automated optimized replenishment, much inventory analysist manpower can be freed up to deal with edge cases and exceptions.

Benefits:

Antuit's Replenishment typically delivers **profit improvements of between 50 and 200 basis points of sales**, depending on the characteristics of the supply chain, the mix of products with their economic and demand profiles, and the thoroughness of the execution. A $1B retailer could see between $5M and $20M of incremental profit added to the bottom line through a combination of margin on recaptured lost sales and/or lower inventory carrying costs.

Driven by Profit Optimization as the prime objective, antuit's Replenishment goes beyond a feasible inventory target to one that is the best for the business.

Our solutions are built upon antuit.ai's world-class AI Demand Forecasting

Unified Demand Signal

Control for the differences between regions, stores, online, and even the fulfillment type, and serve as the connective tissue across financial, assortment, allocation, size, and pricing decisions.

Dynamic Aggregation

An analytic methodology to address data sparsity, avoid the impact of fringe sizes, handle new items, and protect unit minimums

Omnichannel Profiling

Delivering demand profiles that consider store and online sales independently, but optimize for BOPIS and ship-from-store (SFS) aspects of inventory location.

Seamless Integration

Delivers pricing and forecasting results through API integration, feeding either antuit.ai's application suite or existing ERP solutions.

Scalable Data

AI models capable of digesting data that accounts for every demand driver - including seasonality, price, product lifecycle, trends, and local events.

Cloud Native

Built natively in the cloud with scalable distributed processing.

About antuit.ai

We operate with one goal –

Deliver measurable business & financial improvements by enriching decisions and workflows at scale.

That commitment makes antuit.ai different by design.

Our approach amplifies your strategy with SaaS solutions that enable fluid processes, leverage AI, and support user adoption.

We strive to bring you significant value in a very shortperiod that escalates over time.

To learn more visit antuit.ai

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Serving Fortune 1000 companies globally, antuit.ai - now part of Zebra Technologies - is rethinking the way consumer products and retail companies use AI to solve real business problems. Antuit.ai offers solutions that inform the most important business decisions, from supply chain to merchandising to marketing, empowering world-class retailers and consumer products companies to digitally transform their businesses to achieve substantial business results.