# An Inventory Breakthrough: Managing Decisions, Not Inventory

2022

Aera

# A Thought Experiment

Think of your current Days of Inventory. Now imagine a near future where:

1. You could make every decision to balance your inventory at every moment of time. And yes, that includes all the decisions you normally don't have time to make.

2. You made those decisions to ensure optimal inventory from procurement through production and out to distribution.

3. You are making those decisions at every SKU/location grain, and not some abstract aggregation.

4. You could make those decisions continuously and not on some organizationally driven decision cycle.

5. You could increase the accuracy of your available inventory (e.g., OTIF), as a result.

Now what do you think your Days of Inventory would be like?

# A Reality Check

## Inventory is Increasing

The last 15 years have seen inventory solutions incorporate innovations in analytics, data storage and retrieval, cloud architectures, and machine learning. Despite these advances, inventory has risen across the board. It certainly isn't for lack of trying - just about every company has continuously had some inventory optimization project underway during this time. Yet inventory decisions today are still run off a patchwork of spreadsheets, PowerPoint, and conference calls on top of disconnected ERP, WMS, TMS, etc, etc, etc systems. While the sum of these efforts has improved inventory visibility, much remains to be done to unify inventory decision making.

### Days of Inventory Change by Industry: 2004 to 2019 (with % Change)
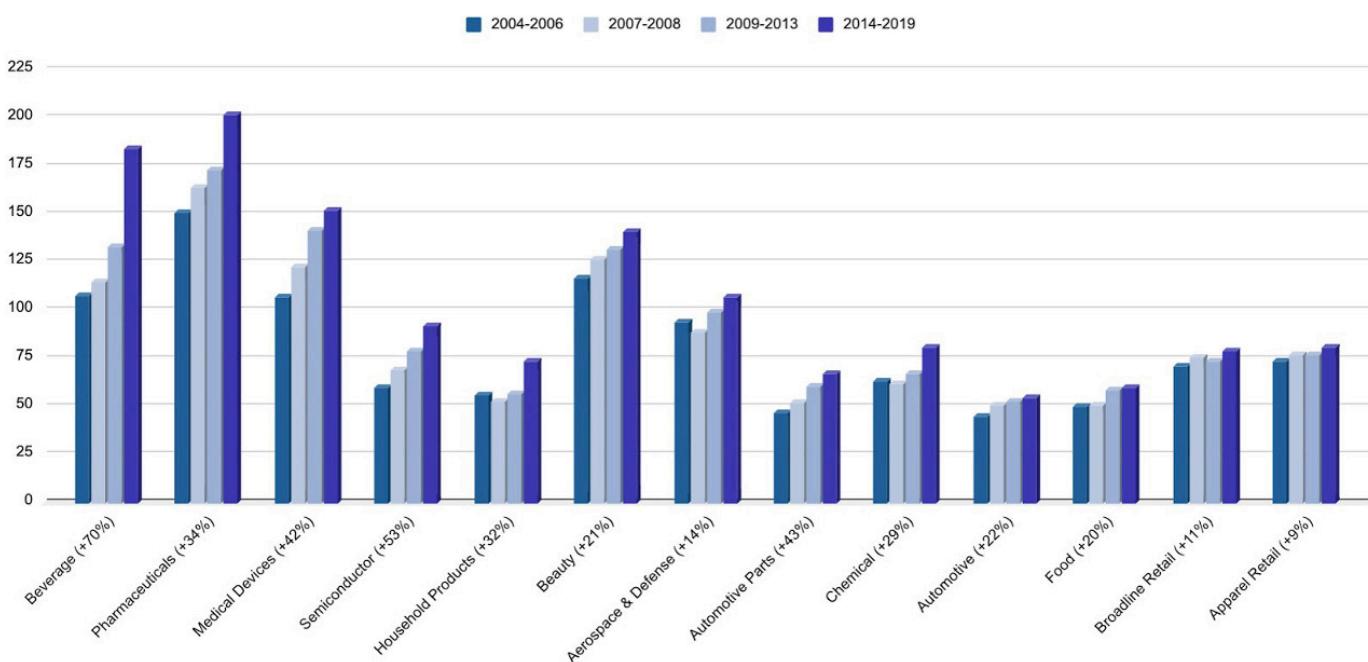


Source: Supply Chain Insights, Lora Cecere, June 12, 2020.

### Service Levels Still Struggle

Inventory is a critical buffer to ensuring high service levels, but organizations are still struggling to hit desired customer service levels even while carrying higher inventory. Walmart's very [public announcement of enforcement and fines to suppliers in 2017 (and strengthened in 2020)](#) shone a light on just how much companies struggle to hit their service levels, despite all the inventory they are buffering.

### Excess & Obsolete Continues to Be a Problem

Though not often talked about, Excess and Obsolete (E&O) is the very manifestation of undesired inventory, requiring disposal in one way or another. When serious enough, E&O shows up publicly as write-offs in company financial statements. Over the years, many clients have struggled with E&O, or its cousin, SLOB (Slow Moving and Obsolete) in one form or another. From cold chain problems to lost inventory to bad ramp-ups and ramp-downs, it continues to plague customers.

# Diminishing Returns on a Flawed Model

Inventory is one of the most critical means companies must manage uncertainty, and the level of uncertainty can dictate the level of buffer inventory as assuredly as $E=MC^2$ associates energy with mass. The issue is, is the focus directed to the right uncertainty? As an industry, the answer has been 'no' for over a decade. An obsession with external uncertainty and a hard coding of decision uncertainty has driven the industry to a point of diminishing returns. But how about internal uncertainty––the ability to sense, predict, consider, and make decisions quickly, accurately, and reliably? These are the very basis of what makes companies agile but have been too often overlooked.

### Obsession with External Uncertainty

Absent total clairvoyance, no amount of preparation is going to remove uncertainty. The problem is most of the past 15 years have been spent focused on driving down uncertainty in demand, and more recently the uncertainty of logistics. What about the uncertainty of decisions? How many decisions can we make at any given moment to make changes to our supply chain to resolve the small inventory problems that snowball into large ones later? How much time do we assume it takes to make a decision because we have to chase down information, distill it, think about it, share it, talk about it, and drive consensus on it? This is the very heart of the problem, while obsessing about uncertainty in demand and logistics we've ignored the uncertainty of the ability to make all the decisions needed to optimize inventory.

### Hard Coding Human Decision Limitations

Today, Inventory Management is largely a human story. Systems exist to show inventory positions at specific locations at specific points in time. And separate repositories exist on business constraints of cost and margin. And even more, tools exist to model trade-offs at specific parts of the supply chain (e.g., inventory at a distribution center). But ultimately, the only place all this information comes together is when people assemble to make decisions. This assumption is hardcoded into the process through the existence of Product Planning Groups, inventory classifications, and Pareto principle decision making. For the longest time, markets stayed relatively homogeneous enough to let the 80/20 rule work successfully. Unfortunately, the 20% of products that drive 80% of your revenue this year are increasingly likely to be different from the 20% next year (or even next quarter).

# Master Your Decision Making to Fix a Flawed Model

The outcomes listed at the beginning of this article result from making better decisions through Decision Intelligence. Decision Intelligence does not mean taking over 100% of decision making. It's about establishing the right mix of machines making thousands of daily decisions, augmenting dozens of decisions requiring human judgment, and freeing up time for people to focus on the few incredibly strategic decisions that no process can automate. It's this mix that results in major disruptions in industries.

## Decision Intelligence for Inventory Management

Decision Intelligence acts as a layer on top of legacy systems. It fuses end-to-end data, letting an intelligence system evaluate a richer set of data, consider interconnected sets of probabilities, determine options, and evaluate against business constraints and goals in real time. In the end, an integrated inventory decision system can look like this:
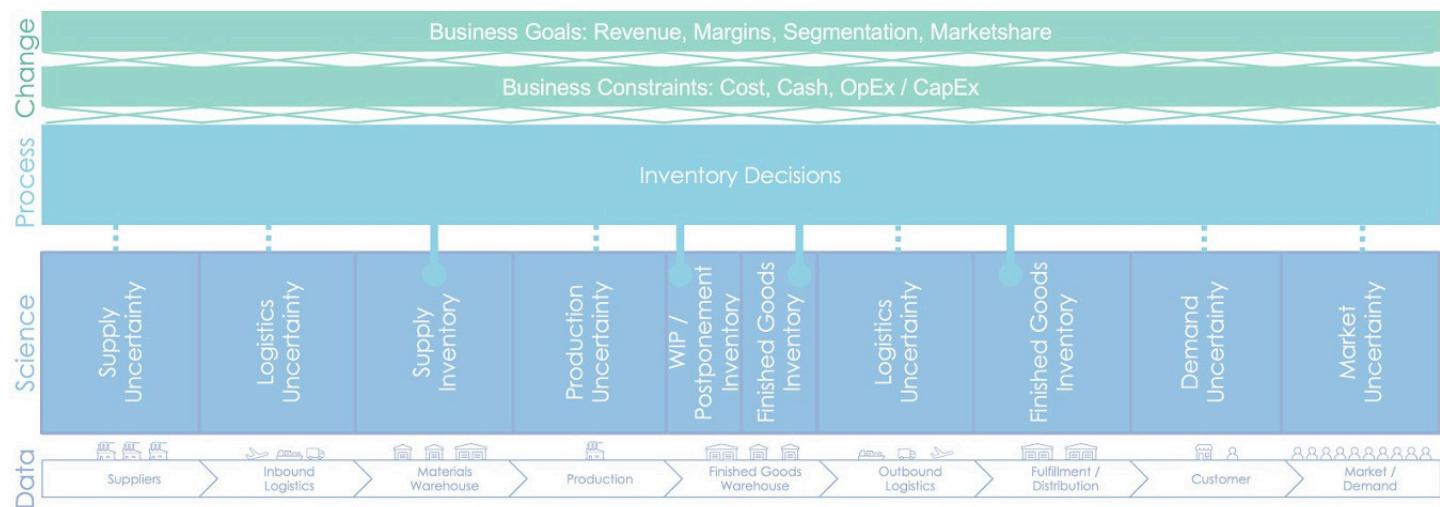


# The Value of a Better Decision IQ

We've found five major categories of improvements from Decision Intelligence adoption:

1. **Volume:** Organizations can make more inventory decisions (stock transfers, allocation changes, production changes, supply purchase order push-ins/outs, and more) that previously may have been beyond the capacity of human planners. This scale can result in small key early decisions that would otherwise turn into bigger problems later. Most organizations don't realize the thousands of decisions that aren't being made every day that Decision Intelligence can uncover.

2. **Coverage:** As Decision Intelligence simulates human decision making, it similarly seeks out and integrates a wide set of data. This fusion of information results in a cognitive data layer that covers supply, production, logistics, demand, orders, and in some cases even promotions or other aspects of the business.

3. **Granularity:** With cloud-scale and purpose-built cognitive algorithms, Decision Intelligence can be applied at SKU and location granularity. Decisions no longer need to be triaged by ABC classifications or product planning groups.

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4. **Frequency:** Decisions can be considered and made in minutes instead of days or confined within a planning cycle window of weeks. Decisions can happen autonomously and adjustments to inventory can become a continuous process of the business.

5. **Accuracy:** Ultimately, overall accuracy (OTIF, less E&O, lower DOI, and more) improves. This precision is not only the result of the four points above, but Decision Intelligence can also run analytics and inform the business about conditions when automation isn't ideal and accommodates a mixed augmentation mode with humans.

Ultimately, these five categories can help benchmark your business and its potential to improve.

# About the Company

Aera Technology is the Decision Intelligence company that makes business agility happen. We deliver a cloud platform that integrates with your existing systems to make and execute business decisions in real time. In the era of digital acceleration, Aera helps enterprises around the world transform how they respond to the ever-changing environment. For more information, visit aeratechnology.com.

## Understand.

Continuously crawls enterprise systems and provides end-to-end visibility

Secure, low impact, and programmable Crawlers

Internet-scale data management and processing

Data indexed for search

## Recommend.

Suggests ways to improve financial and operational performance

Opportunity and risk analytics

Analysis at any granularity

## Predict.

Leverages real-time data and AI to accurately predict business outcomes, risks, and opportunities

Embedded AI and machine learning

## Act.

Proactively engages relevant users and drives the execution of their decisions

Autonomously takes action

Pre-defined process library

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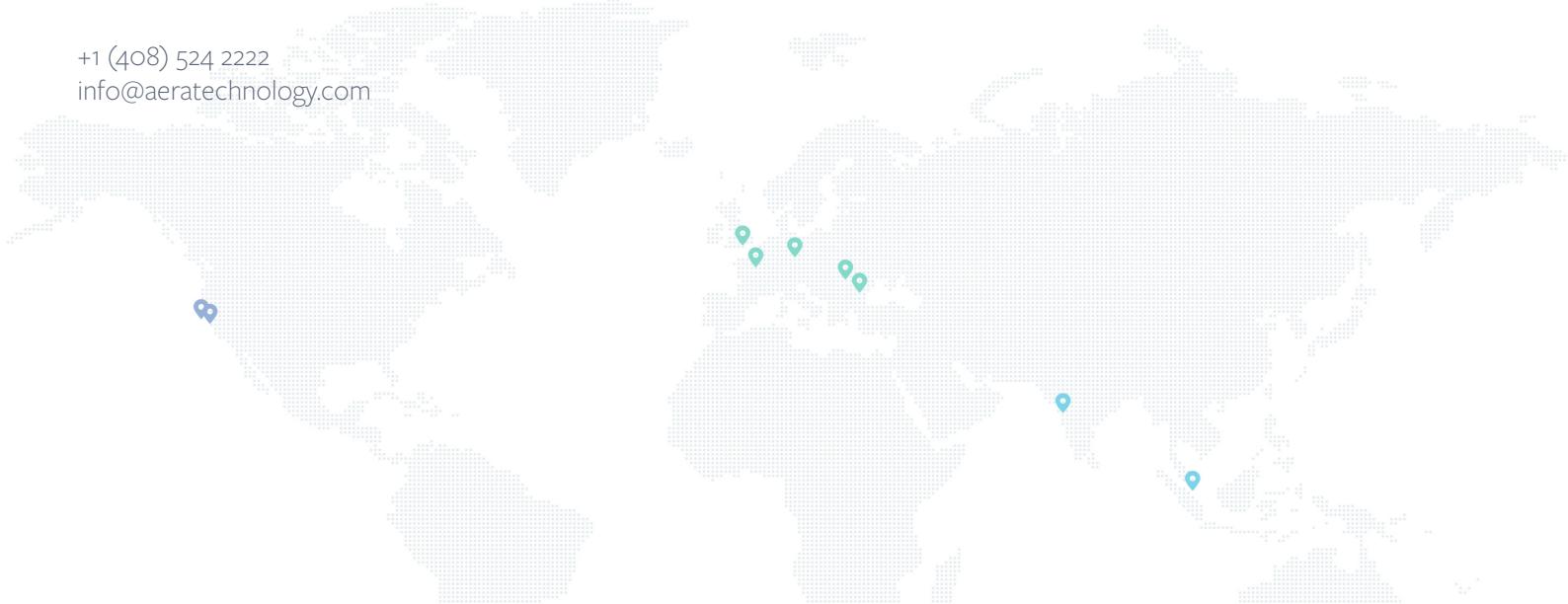
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